

	Type	L #	Hits	Search Text	DBs
1	BRS	L1	500790	(microfluidic or fluidic or mems)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
2	BRS	L2	383251	1 and (channel or microchannel or groove or well or conduit or aperture)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
3	BRS	L3	43248	2 and polymer\$6	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B

	Type	L #	Hits	Search Text	DBs
4	BRS	L4	12980	2 and polymer\$6 with (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
5	BRS	L5	12980	3 and polymer\$6 with (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
6	BRS	L6	11205	3 and polymer\$6 near8 (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B

	Type	L #	Hits	Search Text	DBs
7	BRS	L8	4	6 and cross near6 link? near6 polymer\$6 near8 (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
8	BRS	L9	4	2 and cross near6 link? near6 polymer\$6 with (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
9	BRS	L10	5	2 and cross near6 link? with polymer\$6 with (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B

	Type	L #	Hits	Search Text	DBs
10	BRS	L11	63	2 and cross near6 link? with polymer\$6 same (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
11	BRS	L12	0	2 and (shallow or deep) with cross near6 link? with polymer\$6 same (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
12	BRS	L13	0	2 and (shallow or deep) same cross near6 link? with polymer\$6 same (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B

	Type	L #	Hits	Search Text	DBs
13	BRS	L14	50	1 and cross near6 link? near8 polymer?	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B
14	BRS	L15	0	1 and (shallow or deep) same cross near6 link? with polymer\$6 same (layer or substrate)	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWEN T; IBM_TD B

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NEWS	6	MAR 30	RDISCLOSURE reloaded with enhancements
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NEWS	16	MAY 21	TOXCENTER enhanced with BIOSIS reload
NEWS	17	MAY 21	CA/CAPplus enhanced with additional kind codes for German patents
NEWS	18	MAY 22	CA/CAPplus enhanced with IPC reclassification in Japanese patents
NEWS	19	JUN 27	CA/CAPplus enhanced with pre-1967 CAS Registry Numbers
NEWS	20	JUN 29	STN Viewer now available
NEWS	21	JUN 29	STN Express, Version 8.2, now available
NEWS	22	JUL 02	LEMBASE coverage updated
NEWS	23	JUL 02	LMEDLINE coverage updated
NEWS	24	JUL 02	SCISEARCH enhanced with complete author names
NEWS	25	JUL 02	CHEMCATS accession numbers revised
NEWS	26	JUL 02	CA/CAPplus enhanced with utility model patents from China
NEWS	27	JUL 16	CAPplus enhanced with French and German abstracts
NEWS	28	JUL 18	CA/CAPplus patent coverage enhanced
NEWS	29	JUL 26	USPATFULL/USPAT2 enhanced with IPC reclassification
NEWS EXPRESS	29	JUNE 2007: CURRENT WINDOWS VERSION IS V8.2, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 05 JULY 2007.	
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=> s (microfluid? or fluid? or mems or chip or biochip)

L1 1608970 (MICROFLUID? OR FLUID? OR MEMS OR CHIP OR BIOCHIP)

=> s l1 and (channel or microchannel or well or groove or aperture or port)

L2 281624 L1 AND (CHANNEL OR MICROCHANNEL OR WELL OR GROOVE OR APERTURE OR PORT)

=> s l2 and cross? (8w) link? (8w) polymer? (s) (substrate or layer)

L3 16 L2 AND CROSS? (8W) LINK? (8W) POLYMER? (S) (SUBSTRATE OR LAYER)

=> s l2 and cross? (8w) link? (8w) polymer?

L4 115 L2 AND CROSS? (8W) LINK? (8W) POLYMER?

=> s l2 and (shallow or deep) (8w) cross? (8w) link? (8w) polymer?

L5 1 L2 AND (SHALLOW OR DEEP) (8W) CROSS? (8W) LINK? (8W) POLYMER?

=> s l2 and (shallow or deep) (s) cross? (8w) link? (8w) polymer?

L6 2 L2 AND (SHALLOW OR DEEP) (S) CROSS? (8W) LINK? (8W) POLYMER?

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L6 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1847 CAPLUS

DOCUMENT NUMBER: 142:105593

TITLE: Fluidic MEMS device

INVENTOR(S): Chen, Chien-hua; Yang, Xia Feng

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 33 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004265182	A1	20041230	US 2003-606023	20030624
WO 2005005046	A2	20050120	WO 2004-US18628	20040610
WO 2005005046	A3	20050811		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1635947	A2	20060322	EP 2004-755029	20040610
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR			
CN 1809421	A	20060726	CN 2004-80017253	20040610
PRIORITY APPLN. INFO.:			US 2003-606023	A 20030624
			WO 2004-US18628	W 20040610

AB A fluidic micro electro-mech. system (MEMS) device is described. In one aspect, at least one at least partially covered fluidic channel is formed between a polymer layer and a polymer substrate as the polymer layer is deposited on the substrate. The partially covered fluidic channel is fabricated as a unitary polymer layer structure. In one implementation, a strong exposure process is applied to the polymer layer to create a deep cross-linked polymer region. A weak exposure process is applied to the polymer layer to create a shallow cross-linked polymer region.

L6 ANSWER 2 OF 2 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(28):12943 COMPENDEX  
TITLE: Polymer reduction leads to increased success: A comparative study.  
AUTHOR: Kostenuk, N.H. (SPE Trican Well Service Ltd.); Gagnon, P.J.  
MEETING TITLE: 2006 SPE Gas Technology Symposium: Mature Fields to New Frontiers.  
MEETING ORGANIZER: Society of Petroleum Engineers, SPE  
MEETING LOCATION: Calgary, AB, Canada  
MEETING DATE: 15 May 2006-18 May 2006  
SOURCE: SPE Proceedings - Gas Technology Symposium v 2006 2006.p 284-288  
SOURCE: SPE Proceedings - Gas Technology Symposium v 2006 2006.p 284-288  
SOURCE: 2006 SPE Gas Technology Symposium: Mature Fields to New Frontiers  
PUBLICATION YEAR: 2006  
MEETING NUMBER: 67653  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2006(28):12943 COMPENDEX

AB Recent advances in guar and cross-linker technologies have resulted in the development of high viscosity cross-linked borate fracturing fluids without increasing polymer loadings.



These Low Polymer borate fracturing fluids (LP) are successfully being utilized in various formations previously believed to be too hot and or too deep for low polymer fracturing fluids. Historically, polymer loadings of 3.6 - 4.2 kg/m3 (30-35 lb/1000gal) were commonly pumped in the Western Canadian Sedimentary Basin (WCSB) for formations deeper than 2500 meters and bottom hole temperatures greater than 80deg C. These same formations are now fracture stimulated using the Low Polymer fluids with loadings as low as 1.8 kg/m3 (15 lb/1000gal) with exceptional results. This paper demonstrates that Low Polymer fracture fluids can be used in place of higher polymer fluids with minimal changes to the overall design of the fracture treatment. The new fluid can be pumped on-the-fly at conventional pump rates and proppant concentrations due to the fluid's improved shear and temperature stability. The advantages of using a reduced polymer fracturing fluid include increased production, lower treatment costs, and lower friction pressures. This paper illustrates these advantages as it compares the Low Polymer fracture fluid with High Polymer fracture fluids in over 200 wells in the WCSB. The formations where LP fluids were utilized have depths of up to 3250 meters and reservoir temperatures reaching over 100deg C. Copyright 2006, Society of Petroleum Engineers. 6 Refs.

=> display 17 1-99 ibib abs

L7 ANSWER 1 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2007:34273 CAPLUS  
 DOCUMENT NUMBER: 146:124906  
 TITLE: Fluid loss pills  
 INVENTOR(S): Horton, Robert L.; Prasek, Bethicia B.  
 PATENT ASSIGNEE(S): M-I LLC, USA  
 SOURCE: PCT Int. Appl., 28pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007005499	A1	20070111	WO 2006-US25320	20060629
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRIORITY APPLN. INFO.: US 2005-695803P P 20050630

AB A fluid loss pill that includes a cross-linked polymer gel, a brine, and solid salt particles disposed in the gel is described. Further, a method for reducing fluid loss that includes pumping a selected amount of a fluid loss pill into a well-bore leading to an oil-, condensate-, or gas-producing formation, the fluid loss pill including a cross-linked polymer gel, a brine, and solid salt particles disposed in the gel is described.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:510236 CAPLUS

DOCUMENT NUMBER: 146:512020

TITLE: Method of forming vertical microelectrodes in a microchannel to create uniform electric fields within the microchannel

INVENTOR(S): Lee, Abraham P.; Wang, Lisen

PATENT ASSIGNEE(S): The Regents of the University of California, USA

SOURCE: U.S. Pat. Appl. Publ., 16pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007105239	A1	20070510	US 2006-557060	20061106
US 2007125941	A1	20070607	US 2007-670945	20070202
PRIORITY APPLN. INFO.:			US 2005-734544P	P 20051107
			US 2006-743220P	P 20060202
			US 2006-557060	A2 20061106

AB Method of forming vertical microelectrodes in a microchannel is claimed to create uniform elec. fields within the microchannel. A method for forming vertical electrodes in a microchannel includes providing a substrate having a cross-linked polymer layer thereon. A plurality of elec. contacts are then patterned on the cross-linked polymer. A photoresist is applied on the cross-linked polymer overtop the elec. contacts. Holes or vias are formed in the photoresist and a metallic material is deposited therein to form vertically-oriented electrodes. Optionally, the electrodes may be coated with a biocompatible metal such as Pt. The remaining photoresist on the cross-linked polymer is then removed. An epoxy-based photoresist such as SU-8 is applied over the substrate and portions of the photoresist are lithog. exposed and removed to form the microchannel. The vertical electrodes may be located on opposing sides of the microchannel. Finally, the microchannel is sealed a cap.

L7 ANSWER 3 OF 99 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2007:9426621 INSPEC

TITLE: Apatite-forming ability of polyglutamic acid gel in simulated body fluid: effect of cross-linking agent

AUTHOR: Sugino, A.; (Graduate Sch. of Eng., Nagoya Univ., Japan), Miyazaki, T.; Ohtsuki, C.

SOURCE: Key Engineering Materials (2007), vol.330-332, pt.1, p. 683-6, 5 refs.

CODEN: KEMA EY, ISSN: 1013-9826

SICI: 1013-9826(2007)330/332:1L.683:AFAP;1-G

Published by: Trans Tech Publications, Switzerland

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: Switzerland

LANGUAGE: English

AN 2007:9426621 INSPEC

AB Development of the organic-inorganic hybrids composed of apatite crystals and organic polymer is expected to be an attractive material that has mechanical properties similar to natural bone as well as

bone-bonding ability, i.e. bioactivity. It is reported that the carboxyl groups (-COOH) on the surfaces of the organic substrates act as a catalyst for induction of heterogeneous nucleation of apatite. The present authors previously showed that the apatite was successfully deposited on the polyglutamic acid gels containing abundant carboxyl groups through the biomimetic process, when they were priorly treated with calcium chloride solution. In this study, we fabricated the polyglutamic acid gels with different degree of cross-linking. Effect of the cross-linking on their ability of the apatite formation was examined in simulated body fluid (SBF). It was suggested that the apatite deposition on the polyglutamic acid gels is governed not only by the amount of -COOH that induces the heterogeneous nucleation of the apatite, but also by swelling property that controls local increase in degree of supersaturation with respect to the apatite

L7 ANSWER 4 OF 99 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2007:9399606 INSPEC

TITLE: Cytochrome c adsorption on glutamic acid ligand immobilized magnetic poly(methylmethacrylate-co-glycidylmethacrylate) beads

AUTHOR: Arica, M.Y.; Bayramoglu, G.; (Biochem. Process. & Biomater. Res. Lab., Kirikkale Univ., Yahsihan-Kirikkale, Turkey), Logoglu, E.

SOURCE: Colloids and Surfaces A (Physicochemical and Engineering Aspects) (5 April 2007), vol.297, no.1-3, p. 55-62, 41 refs.

CODEN: CPEAEH, ISSN: 0927-7757

SICI: 0927-7757(20070405)297:1/3L:55:CAGA;1-6

Doc.No.: S0927-7757(06)00761-8

Published by: Elsevier, Netherlands

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

COUNTRY: Netherlands

LANGUAGE: English

AN 2007:9399606 INSPEC

AB This work presents data on cytochrome c adsorption onto glutamic acid immobilized magnetic poly(methylmethacrylate-co-glycidylmethacrylate), mp(GMA-MMA) beads which were synthesized from glycidylmethacrylate (GMA) and methylmethacrylate (MMA) in the presence of a cross-linker (i.e., ethyleneglycol dimethacrylate; EGDMA) via suspension polymerization. The epoxy groups of the mp(GMA-MMA) beads were converted into amino groups after reaction with ammonia and the aminated magnetic beads was activated with glutaric dialdehyde. It was then glutamic acid as an amino acid ligand covalently immobilized on the activated beads. The affinity mp(GMA-MMA)-A-GA beads were used in cytochrome c (Cytc) adsorption studies under defined pH, ionic strength or temperature conditions in a batch system using plain mp(GMA-MMA)-A beads as a control system. The maximum adsorption capacity of the mp(GMA-MMA)-A-GA affinity beads was found to be 140.3mgg<sup>-1</sup> beads and the affinity constant (Kd), evaluated by the Langmuir model, was 5.42+10<sup>-6</sup>M. Adsorption capacity of the mp(GMA-MMA)-A-GA were decreased to Cytc by increasing the ionic strength adjusted with NaCl. Adsorption kinetic of Cytc onto magnetic affinity beads was analyzed with first-order and second-order kinetic equations. The first-order equation fitted well with the experimental data. [All rights reserved Elsevier]

L7 ANSWER 5 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:348185 CAPLUS

DOCUMENT NUMBER: 146:427969

TITLE: Development of zero-link polymers of hemoglobin, which do not extravasate and do not induce pressure increases upon infusion

AUTHOR(S): Bucci, Enrico; Kwansa, Herman; Koehler, Raymond C.;  
Matheson, Barbara  
CORPORATE SOURCE: Department of Biochemistry and Molecular Biology,  
University of Maryland Medical School, Baltimore, MD,  
USA  
SOURCE: Artificial Cells, Blood Substitutes, and Biotechnology  
(2007), 35(1), 11-18  
CODEN: ACBSDA  
PUBLISHER: Informa Healthcare USA, Inc.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Intramol. crosslink of Hb tetramers solved the problem of urine  
elimination and short intravascular retention time of cell free Hb  
infusion. It also produced a family of crosslinked Hbs with P50 between  
18 and 30 mmHg. However, it did not solve the problem of MAP increases in  
infused animals. It was proven that extravasation of Hb into interstitial  
fluid was responsible for MAP increases. Extravasation and the  
MAP increase was avoided using a Hb polymer with average size near 25 MDa. In  
spite of a very high oxygen affinity, this polymer delivered oxygen to  
tissues, producing either vasodilation or vasoconstriction according to  
oxygen needs. It was also proven that cell free Hbs are more efficient  
than red cells in delivering oxygen to tissues.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 6 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:149068 CAPLUS

DOCUMENT NUMBER: 144:235905

TITLE: Stabilizing crosslinked polymer guar and modified  
guar derivatives

INVENTOR(S): Kelly, Patrick A.; Gabrysch, Allen D.; Horner, Donald  
N.

PATENT ASSIGNEE(S): Baker Hughes Incorporated, USA

SOURCE: PCT Int. Appl., 19 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006017623	A1	20060216	WO 2005-US27662	20050804
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
US 2006027364	A1	20060209	US 2004-911898	20040805
US 7195065	B2	20070327		
AU 2005271429	A1	20060216	AU 2005-271429	20050804
CA 2576157	A1	20060216	CA 2005-2576157	20050804
EP 1778814	A1	20070502	EP 2005-783035	20050804
R: IT				
GB 2431680	A	20070502	GB 2007-3890	20050804
PRIORITY APPLN. INFO.:			US 2004-911898	A 20040805

AB An aqueous, viscoelastic treating fluid gelled with a crosslinked guar or guar derivative is stabilized and improved with an effective amount of a glycol, such as ethylene glycol. These fluids are more stable in that viscosity is maintained, particularly at elevated temps. The additives may also increase viscosity to the point where less of a crosslinked guar or guar derivative gelling agent is required to maintain a given viscosity. These stabilized, enhanced, aqueous, viscoelastic fluids may be used as treatment fluids for subterranean hydrocarbon formations, such as in hydraulic fracturing.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:437198 CAPLUS

DOCUMENT NUMBER: 144:470992

TITLE: Method for nonuniform permeable cavernous fractured reservoir development

INVENTOR(S): Taziev, M. M.; Chukashev, V. N.; Telin, A. G.;

Malyushova, M. P.; Vakhitov, M. F.

PATENT ASSIGNEE(S): Zakrytoe Aktsionernoe Obshchestvo "Karnek", Russia;

Otkrytoe Aktsionernoe Obshchestvo "Mellyanef't"

SOURCE: Russ., 8 pp.

CODEN: RUXXE7

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2276257	C2	20060510	RU 2004-124330	20040726
PRIORITY APPLN. INFO.:			RU 2004-124330	20040726

AB Comps. and treatment methods for the oil production industry are provided, particularly methods or apparatus for obtaining oil, gas, water, soluble or meltable materials or a slurry of minerals from wells. The method involves injecting a cross-linked polyacrylamide-based polymeric composition into a well through an injection and/or production well and producing oil through production wells. A polyacrylamide having mol. weight of 5-15 million and 5-30% degree of hydrolysis is used. An acid and surfactant mixture plugs are injected into the well before and after the polymeric composition injection. The acid and surfactant are used in a ratio of 45:10. The acid and surfactant mixture plug and the above polymeric composition are injected at a minimal injection rate. After that, the well operation is stopped for performance of the chemical reaction and then the acid and surfactant mixture plugs are injected at a maximal rate and the well is stopped for performance of the chemical reaction. This method increased the production efficiency due to improved cohesion between rock and the polymeric material and, as a result, increased residual resistance factor.

L7 ANSWER 8 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1240231 CAPLUS

DOCUMENT NUMBER: 146:257013

TITLE: Artificial marble with korean kraft paper pattern containing fibrous material, acrylic resin, inorganic filler and polymerization initiator

INVENTOR(S): Park, Eung Seo; Rha, Do Choon; Juen, Jae Wook

PATENT ASSIGNEE(S): Cheil Industries Inc., S. Korea

SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given

CODEN: KRXXA7

DOCUMENT TYPE: Patent  
LANGUAGE: Korean  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2006064155	A	20060613	KR 2004-102858	20041208

PRIORITY APPLN. INFO.: KR 2004-102858 20041208

AB An artificial marble composition is provided to demonstrate Korean craft paper pattern on an artificial marble by comprising fibrous material as well as acryl resin syrup, inorg. filler and polymerization initiator in desirable combination ratio. The artificial marble composition comprises: 100 weight parts of acryl resin syrup; 0.001-10 weight parts of fiber having particle size of 0.1-7 cm; 100-200 weight parts of inorg. filler; 0.1-10 weight parts of a cross-linker; and 0.1-10 weight parts of polymerization initiator. The composition further includes natural fibers, synthetic fibers, and/or regenerated fibers. The composition further includes 0 to 100 weight parts of marble chips having particle size of 0.1-5 mm.

L7 ANSWER 9 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:398532 CAPLUS

TITLE: A process for preparing crosslinked polymer gel for water and gas shutoff in high temperature oil wells

INVENTOR(S): Ghosh, Bisweswar; Bansal, Bhagwan Dass; Anand, Ranjeet Kumar; Singh, Shiv Charan

PATENT ASSIGNEE(S): Mehram Lal Panwar, India

SOURCE: Indian Pat. Appl.

CODEN: INXXBQ

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IN 2004MU00897	A	20060616	IN 2004-MU897	20040819

PRIORITY APPLN. INFO.: IN 2004-MU897 20040819

AB A process employing organically cross-linked and chemically catalyzed polymer gel system in high temperature oil wells for higher oil recovery and reducing water/gas production. A solution of a polymer, Hydroquinone and Hexamine as a crosslinker is prepared as a single aqueous gelant solution. The solution is injected in the target area from where unwanted fluids like water and gas are suspected to be the source. In-situ gelation restricts unwanted fluids from gas zone above or water zone below the oil formation sand. Sealing the source of unwanted fluids allows deliverable petroleum oil production from the oil-bearing sand relatively free from unwanted fluids.

L7 ANSWER 10 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1185462 CAPLUS

DOCUMENT NUMBER: 146:311768

TITLE: Reconfigurable microfluidic chip based on a light-sensitive hydrogel

AUTHOR(S): Al-Arife, Khaled; Knopf, George K.; Bassi, Amarjeet S.  
CORPORATE SOURCE: Department of Mechanical & Materials Engineering, The Univ. of Western Ontario, London, ON, N6A 5B9, Can.

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2006), 6374(Optomechatronic Actuators, Manipulation, and Systems Control),

63740E/1-63740E/10

CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Glass is often used as a substrate material for developing microfluidic chips because it is hydrophilic (attracts and holds moisture), chemical inert, stable over time, optically clear, non-porous, and can be fabricated at low cost. However, the size and geometry of the various components, flow channels and fluid reservoirs are all fixed on the substrate material at the time of microfabrication. Recent advances on the development of a light driven microactuator for actively changing the size and geometry of micro features, based on a photo-responsive hydrogel, are described in this paper. Each discrete microactuator in the platform structure is a bi-layered hydrogel that exploits the ionic nature of the pH sensitive polymer blend of polyethylenimine (PEI) and poly(vinyl alc.) (PVA), and the proton pumping ability of the retinal protein bacteriorhodopsin (bR). When irradiated by a light source with a peak response of 568 nm the bR mols. in the (bR-PVA) layer undergo a complex photocycle that causes protons to be pumped into the adjoining pH sensitive (PEI-PVA) layer. The diffusion of similarly charged ions through the second actuating layer generates electrostatic repulsive and attractive forces which alter the osmotic pressure within the cross-linked polymer network. Depending upon the type of electrostatic forces generated, the pH sensitive hydrogel layer will swell or, alternatively, collapse. The fabrication of the (bR-PVA)-(PEI-PVA) hydrogel microactuator is described and the exptl. results from preliminary tests are presented. The application of the light sensitive hydrogels to developing a reconfigurable microchip platform is briefly discussed.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 11 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1111000 CAPLUS

TITLE: Immobilization of enzymes on microchannel surface through cross-linking polymerization

AUTHOR(S): Honda, Takeshi; Miyazaki, Masaya; Nakamura, Hiroyuki; Maeda, Hideaki

CORPORATE SOURCE: National Institute of Advanced Industrial Science and Technology, Tosu, Saga, 841-0052, Japan

SOURCE: AIChE Spring National Meeting, Conference Proceedings, Orlando, FL, United States, Apr. 23-27, 2006 (2006), P41350/1-P41350/8. American Institute of Chemical Engineers: New York, N. Y.

CODEN: 69IKPK; ISBN: 0-8169-1005-7

DOCUMENT TYPE: Conference; (computer optical disk)

LANGUAGE: English

AB The enzyme-microreactor has a strong potential for applications such as biotechnol. syntheses and analyses. At present, interesting microreactors with various enzymes have been reported. However, the developed methods of microreactor preps. require high-level techniques and/or multi-step procedure which could lead to low cost performance. Also, disposability of the reactor is considered essential in bioanalyses. Simplifying the procedure of enzyme-immobilization in microreactor has been attractive. This is achievable by concertedly utilizing the reaction for enzyme-immobilization and the characteristic of microfluidics. We have designed an enzyme-immobilized microreactor possessing a substrate membrane that covers the internal surface of the micro-channel. The cylindrical membrane is composed of cross-linked polymerized enzyme product. This carrier-free method based on enzyme-cross-linked aggregation (CLEA) realized a facile and inexpensive

preparation of an enzyme-immobilized microreactor. In this study,  $\alpha$ -chymotrypsin was used as a model enzyme for protein digestion. Recently, microreactors capable of protein digestion has been attractive in proteomics studies. By utilizing the optimized condition in CLEA formation,  $\alpha$ -chymotrypsin-immobilized tubing microreactor was successfully prepared by crosslinking polymerization in a concentric laminar flow.

The resulting microreactor showed higher stability against heat and organic solvent than those of the free enzyme. These results show that this preparation method leads to a flexible technol. platform for screening and designing a potential enzyme-microreactor for broad applications.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 12 OF 99 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2006:9158619 INSPEC

TITLE: Response of ferrogels subjected to an AC magnetic field

AUTHOR: Wang, G.; Tian, W.J.; Huang, J.P. (Surface Phys. Lab., Fudan Univ., Shanghai, China)

SOURCE: Journal of Physical Chemistry B (8 June 2006), vol.110, no.22, p. 10738-45, 28 refs.

CODEN: JPCBFK, ISSN: 1089-5647

SICI: 1089-5647(20060608)110:22L:10738:RFSM;1-S

Price: 1089-5647/06/\$33.50

Published by: ACS, USA

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical

COUNTRY: United States

LANGUAGE: English

AN 2006:9158619 INSPEC

AB When a ferrogel, which is chemically cross-linked polymer networks swollen with a ferrofluid, consisting of magnetic particles having nonlinear characteristics is subjected to an alternating current (ac) magnetic field, the magnetic response will generally consist of ac fields at frequencies of the higher-order harmonics. By using a perturbation approach, we investigate nonlinear ac responses of ferrogels, under an ac magnetic field either coupled with a dc magnetic field or not. It is shown that it is possible to detect the volume fraction and shape of particles in ferrogels by measuring such ac responses. Our results are very well understood in spectral representation and are favorably compared with the experimental observations of suspensions being beyond ferrogels

L7 ANSWER 13 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:479721 CAPLUS

DOCUMENT NUMBER: 145:119766

TITLE: Self-Associating Block Copolymer Networks for Microchip Electrophoresis Provide Enhanced DNA Separation via "Inchworm" Chain Dynamics

AUTHOR(S): Chiesl, Thomas N.; Putz, Karl W.; Babu, Meena; Mathias, Patrick; Shaikh, Kashan A.; Goluch, Edgar D.; Liu, Chang; Barron, Annelise E.

CORPORATE SOURCE: Department of Chemical and Biological Engineering, Northwestern University, Evanston, IL, 60208, USA

SOURCE: Analytical Chemistry (2006), 78(13), 4409-4415

CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors describe a novel class of DNA separation media for microchip electrophoresis, "phys. cross-linked" block copolymer networks, which provide rapid (<4.5 min) and remarkably enhanced resolution of DNA in a size



range critical for genotyping. Linear poly(acrylamide-co-dihexylacrylamide) (LPA-co-DHA) comprising as little as 0.13 mol % dihexylacrylamide yields substantially improved electrophoretic DNA sepns. compared to matched molar mass linear polyacrylamide. Single-mol. videomicroscopic images of DNA electrophoresis reveal novel chain dynamics in LPA-co-DHA matrixes, resembling inchworm movement, to which the authors attribute the increased DNA resolution. Substantial improvements in DNA peak separation are obtained,

in

particular, in LPA-co-DHA solns. at polymer/copolymer concns. near the interchain entanglement threshold. Higher polymer concns. yield enhanced sepns. only for small DNA mols. (<120 base pairs). Hydrophobically cross-linked networks offer advantages over conventional linear polymers based on enhanced separation performance (or speed) and over chemical cross-linked gels because hydrophobic cross-links can be reversibly broken, allowing facile microchannel loading.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 14 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1

ACCESSION NUMBER: 2006:1013443 CAPLUS

DOCUMENT NUMBER: 146:3319

TITLE: Using in situ rheology to characterize the microstructure in photopolymerized polyacrylamide gels for DNA electrophoresis

AUTHOR(S): Wang, Jian; Ugaz, Victor M.

CORPORATE SOURCE: Artie McFerrin Department of Chemical Engineering, Texas A and M University, College Station, TX, USA

SOURCE: Electrophoresis (2006), 27(17), 3349-3358

CODEN: ELCTDN; ISSN: 0173-0835

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Photopolymd. cross-linked polyacrylamide hydrogels are attractive sieving matrix formulations for DNA electrophoresis owing to their rapid polymerization times and the potential to locally tailor the gel pore structure through spatial variation of illumination intensity. This capability is especially important in microfluidic systems, where photopolymn. allows gel matrixes to be precisely positioned within complex microchannel networks. Separation performance is also directly related to the nanoscale gel pore structure, which is in turn strongly influenced by polymerization kinetics.

Unfortunately, detailed studies of the interplay among polymerization kinetics, mech. properties, and structural morphol. are lacking in photopolymd. hydrogel systems. In this paper, the authors address this issue by performing a series of in situ dynamic small-amplitude oscillatory shear measurements during photopolymn. of cross-linked polyacrylamide electrophoresis gels to investigate the relation between rheol. and parameters associated with the gelation environment including UV intensity, monomer and cross-linker composition, and reaction temperature. In general, the authors find that the storage modulus  $G'$  increases with increasing initial monomer concentration, cross-linker concentration, and polymerization temperature. The steady-state value of  $G'$ , however, exhibits a more complex dependence on UV intensity that varies with gel concentration. A simple model based on rubber elasticity theory is used to obtain ests. of the average gel pore size that are in surprisingly good agreement with corresponding data obtained from anal. of DNA electrophoretic mobility in gels cast under identical polymerization conditions.

REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 15 OF 99 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2006:9058266 INSPEC

TITLE: Key role of milling in the optimization of TiO<sub>2</sub>

nanoinks  
AUTHOR: Sanson, A.; Gardini, D.; Montanari, G.; Galassi, C.;  
Roncari, E. (Inst. of Sci. & Technol. for Ceramics,  
CNR, Faenza, Italy)  
SOURCE: Journal of Materials Research (June 2006), vol.21,  
no.6, p. 1561-9, 30 refs.  
CODEN: JMREEE, ISSN: 0884-2914  
SICI: 0884-2914(200606)21:6L1561:RMOT;1-I  
Price: 0884-2914/2006/\$2.50  
Published by: Mater. Res. Soc, USA  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: United States  
LANGUAGE: English

AN 2006:9058266 INSPEC

AB Nanostructured films of TiO<sub>2</sub> are becoming more and more attractive as a consequence of their improved sensing properties. Screen printing represents an important low-cost alternative for the production of high-performance devices for the automotive industry. However, to obtain films with superior properties, the composition and each step of the ink production must be carefully controlled. Milling strongly influences the rheological properties of the ink and, as a consequence, the quality of the deposited film. The as-prepared ink was homogenized in a four steps-process with a three-roll mill, and the rheological properties at each intermediate stage were measured. The results showed the dramatic effect of the milling on the flow properties of the nanoink and suggested the importance of a careful control of this step. The rheological behavior of the inks was explained using the basic idea of the transient network theory (TNT) for physically cross-linked networks of polymer solutions. Only an optimized cycle of milling can assure the necessary reproducibility of the ink properties as well as their time stability

L7 ANSWER 16 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(47):12913 COMPENDEX  
TITLE: Water-fracs: We do need proppant after all.  
AUTHOR: Britt, L.K. (NSI Technologies); Smith, M.B.; Haddad, Z.; Lawrence, P.; Chipperfield, S.; Hellman, T.  
MEETING TITLE: SPE Annual Technical Conference and Exhibition, ATCE 2006: Focus on the Future.  
MEETING LOCATION: San Antonio, TX, United States  
MEETING DATE: 24 Sep 2006-27 Sep 2006  
SOURCE: Proceedings - SPE Annual Technical Conference and Exhibition v 2 2006.p 1370-1384  
SOURCE: Proceedings - SPE Annual Technical Conference and Exhibition v 2 2006.p 1370-1384  
SOURCE: Proceedings - SPE Annual Technical Conference and Exhibition, ATCE 2006: Focus on the Future  
CODEN: PSAEE3  
PUBLICATION YEAR: 2006  
MEETING NUMBER: 68512  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2006(47):12913 COMPENDEX

AB The key objective of hydraulic fracturing in tight formation gas reservoirs is the creation of "effective" fracture length. The creation of effective fracture length requires that sufficient fracture conductivity be developed to allow effective fracture fluid cleanup. It is also fairly well understood that occasionally conventional cross-linked gel fracture stimulations do not create the desired fracture dimensions. The potential reasons for the shorter than desired effective fracture lengths are numerous with the most likely being excessive

fracture height growth and poor fracture fluid cleanup. In the context of the Cotton Valley Formation bounding beds necessary to contain a large hydraulic fracture are non-existent except for the Taylor sand. Studies have been conducted of fracture fluid clean-up which indicate that fluid clean-up or more importantly the lack of fluid clean-up is a primary cause of ineffective or less than desired fracture length. This ineffective clean-up is believed to result from (1) the effects of time and temperature on proppant 1, (2) gel residue and its damage to the proppant pack2, (3) viscous fingering through the proppant pack3, (4) the effects of unbroken gel on proppant pack permeability4, (5) non-Darcy and multi-phase fluid flow effects5-7, and (6) capillary pressure 8 . More recent studies9-15 have shown that for effective cleanup of fracturing fluid and length, a Dimensionless Fracture Capacity,  $F_{CD}$ , in excess of 10 is required to overcome yield power-law effects. Dimensionless conductivities of this magnitude are not being generated with many cross-linked gel fracs. Elimination of polymer by fracture stimulating with treated water is cheaper and may provide more effective fractures. However, the use of treated water, results in poorer proppant transport due to the low fluid viscosity. Though more of the created fracture would be effective (no polymer damage) less fracture will likely be created (poor transport). Performance comparisons of Cotton Valley wells fracture stimulated with water and cross-linked gel indicate that water fracs in addition to being cheaper also perform similarly or nearly so to cross-linked gel fracs (and in some cases better). This paper details the application of treated water fracs to the East Texas Cotton Valley Formation and documents an evaluation of well performance and the cause and effects of hydraulic fracturing with treated water on productivity. Through developing an understanding of this well performance behavior, guidelines and/or success criteria are developed for the design and execution of successful water fracs in the Cotton Valley Formation or any tight formation gas reservoir. These guidelines consider all aspects of the fracturing process including reservoir, geomechanical, and design considerations for successful application of treated water as a fracturing fluid. These guidelines, in conjunction with an in depth review of the Cotton Valley Formation, were utilized to develop a modified "hybrid" water frac treatment that mitigates the associated risks with the use of treated water while maintaining the water frac treatment cost and clean-up advantages. Copyright 2006, Society of Petroleum Engineers. 27 Refs.

L7 ANSWER 17 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN  
 ACCESSION NUMBER: 2006(28):13109 COMPENDEX  
 TITLE: Late-life production boost for BP miller with combined scale squeeze and chemical water-shutoff treatments.  
 AUTHOR: Williams, G. (SPE Clariant Oil Service); MacDonald, A.; Wylde, J.; Shields, C.; Smitton, C.; Frampton, H.; Morgan, J.; Morris, A.  
 MEETING TITLE: SPE 8th International Symposium on Oilfield Scale 2006.  
 MEETING ORGANIZER: Society of Petroleum Engineers, SPE  
 MEETING LOCATION: Aberdeen, United Kingdom  
 MEETING DATE: 31 May 2006-01 Jun 2006  
 SOURCE: SPE Eighth International Symposium on Oilfield Scale 2006 v 2006 2006.p 377-383  
 SOURCE: SPE Eighth International Symposium on Oilfield Scale 2006 v 2006 2006.p 377-383  
 SOURCE: SPE Eighth International Symposium on Oilfield Scale 2006, Proceedings  
 PUBLICATION YEAR: 2006  
 MEETING NUMBER: 67655  
 DOCUMENT TYPE: Conference Article  
 TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2006(28):13109 COMPENDEX

AB The current, late life production on the Miller field is characterised by high water cut wells that need frequent scale inhibitor squeezes to manage the production of scale. In addition, the wells are often choked back due to plant water constraints. The key to managing the decline in oil production is therefore to reduce water production. This allows the wells to flow un-choked and also lightens the fluid column, increasing drawdown and oil rate in the well . Other advantages include increased scale inhibitor squeeze (SISQ) life, reduced OPEX costs and reduced environmental impact of overboard discharge of produced water and production chemicals. However, the presence of scale in the wells means that intrusive surveillance and mechanical water shut off would require costly milling to gain access. The field is therefore ideal for the use of chemical selective water shut off (SWSO) treatments, which can be deployed without access to production logging data. BP Miller and Clariant have progressively applied SWSO treatments on a range of wells. A dilute solution of cross-linkable polymer is bullheaded down the wells and reacts with added cross-linker in situ. After cross-linking, the web of polymer is inflated in the presence of water, effectively blocking the flow path, whilst deflating in the presence of oil. Since the whole producing zone is treated, water will be retarded without the need to know where it is coming from. Providing due precautions are taken, this can be highly successful. For example, in May 2005 on Slot 32, oil production increased from 800 bopd to 2,800 bopd, whilst water cut reduced from 92% to 77%. The most likely explanation for this is a combined effect of the treatment stimulating production from the I-sand region while limiting water flow potential from wetter areas. Copyright 2006, Society of Petroleum Engineers. 6 Refs.

L7 ANSWER 18 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(28):12943 COMPENDEX

TITLE: Polymer reduction leads to increased success: A comparative study.

AUTHOR: Kostenuk, N.H. (SPE Trican Well Service Ltd.); Gagnon, P.J.

MEETING TITLE: 2006 SPE Gas Technology Symposium: Mature Fields to New Frontiers.

MEETING ORGANIZER: Society of Petroleum Engineers, SPE

MEETING LOCATION: Calgary, AB, Canada

MEETING DATE: 15 May 2006-18 May 2006

SOURCE: SPE Proceedings - Gas Technology Symposium v 2006 2006.p 284-288

SOURCE: SPE Proceedings - Gas Technology Symposium v 2006 2006.p 284-288

SOURCE: 2006 SPE Gas Technology Symposium: Mature Fields to New Frontiers

PUBLICATION YEAR: 2006

MEETING NUMBER: 67653

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical

LANGUAGE: English

AN 2006(28):12943 COMPENDEX

AB Recent advances in guar and cross-linker technologies have resulted in the development of high viscosity cross-linked borate fracturing fluids without increasing polymer loadings. These Low Polymer borate fracturing fluids (LP) are successfully being utilized in various formations previously believed to be too hot and or too deep for low polymer fracturing fluids. Historically, polymer loadings of 3.6 - 4.2 kg/m<sup>3</sup> (30-35 lb/1000gal) were commonly pumped in the Western Canadian Sedimentary Basin (WCSB) for formations

deeper than 2500 meters and bottom hole temperatures greater than 80deg C. These same formations are now fracture stimulated using the Low Polymer fluids with loadings as low as 1.8 kg/m3 (15 lb/1000gal) with exceptional results. This paper demonstrates that Low Polymer fracture fluids can be used in place of higher polymer fluids with minimal changes to the overall design of the fracture treatment. The new fluid can be pumped on-the-fly at conventional pump rates and proppant concentrations due to the fluid's improved shear and temperature stability. The advantages of using a reduced polymer fracturing fluid include increased production, lower treatment costs, and lower friction pressures. This paper illustrates these advantages as it compares the Low Polymer fracture fluid with High Polymer fracture fluids in over 200 wells in the WCSB. The formations where LP fluids were utilized have depths of up to 3250 meters and reservoir temperatures reaching over 100deg C. Copyright 2006, Society of Petroleum Engineers. 6 Refs.

L7 ANSWER 19 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN  
ACCESSION NUMBER: 2007(14):4434 COMPENDEX  
TITLE: Slickwater technology helping greene county enhance natural gas production.  
AUTHOR: Mills, Robert D. (BJ Services Co.)  
MEETING TITLE: SPE Eastern Regional Meeting 2006: Revitalizing Appalachia.  
MEETING LOCATION: Canton, OH, United States  
MEETING DATE: 11 Oct 2006-13 Oct 2006  
SOURCE: SPE Eastern Regional Meeting v 2006 2006.p 280-282  
SOURCE: SPE Eastern Regional Meeting v 2006 2006.p 280-282  
SOURCE: SPE Eastern Regional Meeting 2006: Revitalizing Appalachia  
PUBLICATION YEAR: 2006  
MEETING NUMBER: 69372  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: General Review  
LANGUAGE: English  
AN 2007(14):4434 COMPENDEX  
AB The Appalachian Basin is known for producing wells that have extreme longevity to include wells that are still producing after 30 or more years. The last several years, Greene County in Pennsylvania has become an active area. The producers have been drilling the Upper Devonian sandstone at depths of 2500 to 5000 feet. Various formations including the Bradford, Speechley, Balltown, and Fifth Sand are typical in a completion of the wells. The conventional completion method has been to utilize a cross-linked polymer gel system. A newer approach utilizing slickwater technology being used on some shale formations has been modified for use in Greene County. The formations commonly average between 4 to 20 feet of net productive reservoir per zone with 6 to 9 percent porosity, and 50 to 80 percent gas saturation. The formations have been difficult to initiate a fracture. Once a fracture has been initiated, transport of proppant into the zones has also been difficult. Screen-outs have been common in stimulating the tight zones. During the flow-back process of a screened-out zone, probable formation particles were observed accompanying the sand during the latter stages of the flow-back. Analysis of the log and flow-back particles indicated the particles were primarily a siltstone or shaley-sandstone. Potential pay zones that show a siltstone or shaley-sandstone composition were selected and treated with a slickwater pre-pad. The volume of slickwater has been 20 to 30 percent of the total volume of the treatment, The slickwater treatment is being used to connect the minor fingerlike fractures within the zone that show shale characteristics. It is believed that the slickwater treatment extends the total fracture length while stimulating the formation. The minor fractures are believed to contribute substantially to the production within the

tight gas sands of the Devonian sandstone. A cross-linked polymer gel used to transport proppant follows the slickwater treatment. The fluid used for proppant transport is guar based. The fluid is chemically enhanced while being pumped down the casing to give higher viscosity and proppant transportability. Proppant loading ranges from 0.5 to 3 pounds proppant added. Early production data is showing an increase in initial well production. The production increases have been sufficient to continue the treatments. The increased initial production helps decrease the time required to see a return on the investment for the producer. Copyright 2006, Society of Petroleum Engineers. 2 Refs.

L7 ANSWER 20 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(28):12998 COMPENDEX

TITLE: Experimental evaluation of the blockage efficiency of a novel gel system to mitigate water-cut problem of producing wells.

AUTHOR: Amanullah, M. (SPE CSIRO Petroleum)

MEETING TITLE: 15th SPE-DOE Improved Oil Recovery Symposium: Old Reservoirs New Tricks A Global Perspective.

MEETING ORGANIZER: Society of Petroleum Engineers, SPE

MEETING LOCATION: Tulsa, OK, United States

MEETING DATE: 22 Apr 2006-26 Apr 2006

SOURCE: Proceedings - SPE Symposium on Improved Oil Recovery v 1 2006.p 274-283

SOURCE: Proceedings - SPE Symposium on Improved Oil Recovery v 1 2006.p 274-283

SOURCE: Fifteenth SPE-DOE Improved Oil Recovery Symposium: Old Reservoirs New Tricks A Global Perspective  
CODEN: SSIPD6

PUBLICATION YEAR: 2006

MEETING NUMBER: 67654

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2006(28):12998 COMPENDEX

AB Water production is a problem of paramount importance from technical, environmental and oil production points of views. The processing, treatment and disposal of produced water cost millions of dollars for a single field. On the other hand, high water production causes a drastic reduction in oil production. The issue of excessive water production has been addressed by the industry by placing different gel system in the reservoir to block the water flow and facilitate the oil flow. The most commonly used solutions are polymer gels with chromium (Cr3+) as the cross-linking agents in the gel system. Some of the polymer gel systems are not effective at temperature above 70 deg C due to the thermal and hydrolytic degradation of the polymer. Moreover, the precipitation of the toxic cross-linking agent with increased temperature and pH is a major environmental concern. This paper describes the water blocking efficiency of an environment friendly and biodegradable gel system to mitigate the water cut problem of producing wells. The newly designed gel system has no cross-linking agent and is stable up to 194 deg F (90 deg C) temperature. The system is stable in the presence of divalent ions and also in a range of pH conditions. Experimental results indicate nearly 100% reduction in water permeability of 16/30 sand-pack after treatment. Flow test with mineral oil indicate higher oil permeability compared to water. However, oil permeability has been reduced dramatically compared to pre-treatment oil permeability. Hence, it is most suitable for treating the water zone of a reservoir. Copyright 2006, Society of Petroleum Engineers. 9 Refs.

L7 ANSWER 21 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:1076814 CAPLUS

DOCUMENT NUMBER: 146:84163  
TITLE: Application of polymer plugging removing and injection increasing technique in Gudao oil field  
AUTHOR(S): Zhang, Yan; Sui, Weina; Liu, Guochun  
CORPORATE SOURCE: Gudao Oil Production Plant, Shengli Oil Field Limited Company, Dongying, 257231, Peop. Rep. China  
SOURCE: Zuancai Gongyi (2006), 29(1), 87-90  
CODEN: ZGUOAJ; ISSN: 1006-768X  
PUBLISHER: Zuancai Gongyi Bianjibu  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

AB According to the characteristics of stop-injection or no injection of polymer injection well and low flow rate of oil well which resulted from polymer plugging, a polymer blocking remover (chlorine dioxide and calcium peroxide), DOC-8, was developed. DOC-8 was used by combining with an acid-treating agent JNC-006, which could break down the plugging of clay and mech. admixt. Spot application showed that this technol. (using DOC-8 and JNC-006 as compound blocking remover) not only could break down polymer plugging but also for the cross-linked polymer plugging had strong restoring force.

L7 ANSWER 22 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(22):10483 COMPENDEX  
TITLE: Molecularly imprinted polymer-modified electrode for on-line conductometric monitoring of haloacetic acids in chlorinated water.  
AUTHOR: Suedee, Roongnapa (Molecular Recognition Materials Research Unit Department of Pharmaceutical Chemistry Faculty of Pharmaceutical Sciences, Hatyai, Songkla 90112, Thailand); Intakong, Wimon; Dickert, Franz L.  
SOURCE: Analytica Chimica Acta v 569 n 1-2 May 31 2006 2006.p 66-75  
SOURCE: Analytica Chimica Acta v 569 n 1-2 May 31 2006 2006.p 66-75  
CODEN: ACACAM ISSN: 0003-2670  
PUBLICATION YEAR: 2006  
DOCUMENT TYPE: Journal.  
TREATMENT CODE: Theoretical; Experimental  
LANGUAGE: English

AN 2006(22):10483 COMPENDEX

AB A conductometric sensor for on-line testing of haloacetic acids has been developed based on lab-on-chip device incorporated with an integrated miniaturised liquid-handling system. The sensor utilises a molecularly imprinted polymer (MIP) synthesized by the interaction between trichloroacetic acid (TCAA) template and a functional monomer, 4-vinylpyridine (VPD), together with cross-linking polymerisation of ethylene glycol dimethacrylate (EDMA). The ability of this MIP to change its conductivity in the presence of the target molecule into the imprint cavity has been used to develop the sensor, which responds well to TCAA in a continuous flow system with relatively good linearity, although this depends on the applied frequency. Thermal influences on the resistance of the sensor were in the order of 1.45% resistance signal variation per Kelvin at 3 kHz. The sensor showed high specific sensitivity to the target analyte and a stable and reasonable signal response in a solution containing inorganic anions. The sensitivity (range 0.5-5  $\mu\text{g l}^{-1}$ ) and selectivity achieved with standard TCAA and five other haloacetic acids (HAAs) (dichloro-, monochloro-, tribromo-, dibromo-, and monobromoacetic acid) in water was good. Minimum sample volume required is 2.5 ml and the assay time is 2 min. The sensor has successfully been applied to haloacetic acid determination in domestic and commercial drinking water samples. \$CPY 2006 Elsevier B.V. All rights reserved. 26 Refs.

L7 ANSWER 23 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:450819 CAPLUS  
DOCUMENT NUMBER: 146:145309  
TITLE: Study of the atomic force microscope to the mechanism  
of the quadratic cross linked gel dehydration  
AUTHOR(S): Luo, Xian-bo; Pu, Wan-fen; Wu, Hai-yan  
CORPORATE SOURCE: Southwest Petroleum Institute, Chengdu, Sichuan,  
610500, Peop. Rep. China  
SOURCE: Xinan Shiyou Xueyuan Xuebao (2006), 28(1), 65-67  
CODEN: XSXUEG; ISSN: 1000-2634  
PUBLISHER: Xinan Shiyou Xueyuan Xuebao Bianjibu  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

AB We have studied the microscopic morphol. structure of the pregel and the quadratic cross linked gelation with the same polymeric compound concentration using the atomic force micro scope. Through the comparative study of the appearance graph of the pregel and the quadratic cross linked gelation, the result indicates that, the net work shape structure of the quadratic cross linked gelation is studied with many small pore spaces and giant anomalistic hollow cavity, and the size of the hollow cavity can reach 200nm. We analyze the observed results of the experiment synthetically, and inquire into the formation mechanism of the hollow cavity and the easy dehydration mechanism of the cross linked gelation as well.

L7 ANSWER 24 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(30):11252 COMPENDEX  
TITLE: Gelcasting process with biopolymer in natural oil for making ceramic sphere.  
AUTHOR: Panyathanmaporn, Thammarat (National Metal and Materials Technology Center 114 Thailand Science Park, Klong Luang, Pathumthani 12120, Thailand); Chumnanklang, Rung-Arun; Supothina, Sitthisuntorn; Jaroenworalluck, Angkhana  
MEETING TITLE: 6th Pacific Rim Conference on Ceramic and Glass Technology, PacRim6.  
MEETING LOCATION: Maui, HI, United States  
MEETING DATE: 11 Sep 2005-16 Sep 2005  
SOURCE: Ceramic Transactions v 193 2006.p 39-48  
SOURCE: Ceramic Transactions v 193 2006.p 39-48  
SOURCE: Eco-Materials Processing and Design - Proceedings of the 6th Pacific Rim Conference on Ceramic and Glass Technology, PacRim6  
CODEN: CETREW ISSN: 1042-1122  
PUBLICATION YEAR: 2006  
MEETING NUMBER: 67826  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2006(30):11252 COMPENDEX

AB Gelcasting is a forming method, which is based on the consolidation of fluid well-dispersed slurry into a rigid body without liquid removal. The gel casting process consists of the dispersion of ceramic powders in the monomer solution to form a fluid that is subsequently cast into the non-porous mould. At the elevating temperature or by acting by catalyst, initiator and a cross-linking agent, the monomers polymerise to form a strong, cross-linked polymer-solvent gel and permanently immobilised the ceramic slurry in the desired shape. However, commercial monomers, crosslinkers and initiators are toxic. In this work we are interested in using biopolymers, i.e. starch, as binders because it is environmentally friendly, easy to burn out and very economic. To make ceramic spheres, Al<sub>2</sub>O<sub>3</sub> slurry mixed with starch solution to form a



fluid is prepared. By dropping small volumes of Al<sub>2</sub>O<sub>3</sub>-starch solution in a vegetable oil at the high temperature, the starch forms a strong, cross-linked gel and immobilises the Al<sub>2</sub>O<sub>3</sub> powders in the spherical shape. Al<sub>2</sub>O<sub>3</sub> spheres were dried and then sintered at 1700deg C for 1 hour. The sintered porous Al<sub>2</sub>O<sub>3</sub> spheres exhibit a broad diameter range of 50 to 920 mum with a mean sphere size of 325 mum. The measured porosity area of Al<sub>2</sub>O<sub>3</sub> spheres is 48%. SEM examination reveals that the surface appearance shows a wrinkled structure integrated with coarse pores. Also, clay spheres are shown. 11 Refs.

L7 ANSWER 25 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2007(4):7816 COMPENDEX

TITLE: Reconfigurable microfluidic chip  
based on a light-sensitive hydrogel.

AUTHOR: Al-Arife, Khaled (Department of Mechanical and  
Materials Engineering University of Western Ontario,  
London, Ont. N6A 5B9, Canada); Knopf, George K.;  
Bassi, Amarjeet S.

MEETING TITLE: Optomechatronic Actuators, Manipulation, and Systems  
Control.

MEETING ORGANIZER: SPIE

MEETING LOCATION: Boston, MA, United States

MEETING DATE: 01 Oct 2006-03 Oct 2006

SOURCE: Proceedings of SPIE - The International Society for  
Optical Engineering v 6374 2006.

SOURCE: Proceedings of SPIE - The International Society for  
Optical Engineering v 6374 2006., arn: 63740E

SOURCE: Optomechatronic Actuators, Manipulation, and Systems  
Control

CODEN: PSISDG ISSN: 0277-786X

ISBN: 0819464724; 9780819464729

PUBLICATION YEAR: 2006

MEETING NUMBER: 68951

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical

LANGUAGE: English

AN 2007(4):7816 COMPENDEX

AB Glass is often used as a substrate material for developing microfluidic chips because it is hydrophilic (attracts and holds moisture), chemically inert, stable over time, optically clear, non-porous, and can be fabricated at low cost. However, the size and geometry of the various components, flow channels and fluid reservoirs are all fixed on the substrate material at the time of microfabrication. Recent advances on the development of a light driven microactuator for actively changing the size and geometry of micro features, based on a photo-responsive hydrogel, are described in this paper. Each discrete microactuator in the platform structure is a bi-layered hydrogel that exploits the ionic nature of the pH sensitive polymer blend of polyethylenimine (PEI) and poly(vinyl alcohol) (PVA), and the proton pumping ability of the retinal protein bacteriorhodopsin (bR). When irradiated by a light source with a peak response of 568 nm the bR molecules in the (bR-PVA) layer undergo a complex photocycle that causes protons to be pumped into the adjoining pH sensitive (PEI-PVA) layer. The diffusion of similarly charged ions through the second actuating layer generates electrostatic repulsive and attractive forces which alter the osmotic pressure within the cross-linked polymer network. Depending upon the type of electrostatic forces generated, the pH sensitive hydrogel layer will swell or, alternatively, collapse. The fabrication of the (bR-PVA)-(PEI-PVA) hydrogel microactuator is described and the experimental results from preliminary tests are presented. The application of the light sensitive hydrogels to developing a reconfigurable microchip platform is briefly discussed. 20 Refs.

L7 ANSWER 26 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(43):8607 COMPENDEX  
TITLE: Photo-responsive hydrogel for controlling flow on a microfluidic chip.  
AUTHOR: Al-Arife, Khaled (Department of Mechanical and Materials Engineering University of Western Ontario, London, Ont. N6A 5B9, Canada); Knopf, George K.; Bassi, Amarjeet S.  
MEETING TITLE: Photonics North 2006.  
MEETING ORGANIZER: TeraXion, Canada; Developpement economique Canada, Canada; Quebec Dev't. economique, Innov. et Export., Canada; Societe Generale de Financement, Canada; ROBIC, Canada; et al.  
MEETING LOCATION: Quebec City, QB, Canada  
MEETING DATE: 05 Jun 2006-08 Jun 2006  
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 6343 II 2006.  
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 6343 II 2006., arn: 63432R  
SOURCE: Photonics North 2006  
CODEN: PSISDG ISSN: 0277-786X  
PUBLICATION YEAR: 2006  
MEETING NUMBER: 68323  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2006(43):8607 COMPENDEX

AB One technological challenge in microfluidic system design has been controlling the directional flow of minute amounts of fluid through various narrow channels. Stimuli-responsive polymers can be used as micro control devices such as valves because these materials significantly change their volumetric properties in response to small environmental changes in pH, temperature, solvent composition, or electric field. In this paper, a bi-layered hydrogel structure is introduced as a light activated microactuator. The first layer of the device is a light sensitive polymer network containing poly(vinyl alcohol) (PVA) and the retinal protein bacteriorhodopsin (bR). The second layer is a blend of PVA hydrogel and a pH sensitive polymer polyethylenimine (PEI). When exposed to a light source with a peak response at 568 nm, the bR molecules in the first layer undergo a multistage photocycle that cause protons to be pumped into the surrounding medium. The diffusion of these similarly charged ions through the adjoining pH responsive hydrogel generates electrostatic repulsive and attractive forces which alter the osmotic pressure within the cross-linked polymer network. Depending upon the type of electrostatic forces generated, the pH sensitive hydrogel layer will swell or, alternatively, collapse. The multi-layered structure can be fabricated and inserted into the microchannel. The expanding volume of the actuating hydrogel is used to regulate flow or control leakage. Preliminary experiments on a 625mm3 optical actuating device are presented to identify key response characteristics and illustrate the mechanism for actuation. 22 Refs.

L7 ANSWER 27 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:696604 CAPLUS  
DOCUMENT NUMBER: 143:169162  
TITLE: Sparsely cross-linked nanogels: a novel polymer structure for microchannel DNA sequencing  
INVENTOR(S): Barron, Annelise E.; Doherty, Erin A. S.  
PATENT ASSIGNEE(S): Northwestern University, USA  
SOURCE: PCT Int. Appl., 79 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent

LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005069886	A2	20050804	WO 2005-US1355	20050118
WO 2005069886	A8	20051208		
WO 2005069886	A3	20060601		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, SM, PI, SI, SZ, BE, CY, FR, GR, IE, IT, MC, NL, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2006074186	A1	20060406	US 2005-37561	20050118

PRIORITY APPLN. INFO.: US 2004-536879P P 20040116

AB The present invention is generally directed to novel polymeric material for use in the electrophoretic separation of nucleic acids. In particular, the novel polymer materials are sparsely crosslinked nanogels, dissolved in an aqueous buffer to form solns. with moderate to high viscosity. The present invention further provides methods for generating such novel polymers, and related methods of their use. Poly-DEA and poly(DEA-DMA) polymer nanogels were prepared and used in DNA sequencing.

L7 ANSWER 28 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:395539 CAPLUS

DOCUMENT NUMBER: 142:466126

TITLE: Method for reducing the viscosity of viscous fluids

INVENTOR(S): Fletcher, Philip; Crabtree, Michael John; Eagland, Donald; Crowther, Nicholas John

PATENT ASSIGNEE(S): Advanced Gel Technology Limited, UK

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005040669	A1	20050506	WO 2004-GB4083	20040927
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2004284273	A1	20050506	AU 2004-284273	20040927
CA 2540767	A1	20050506	CA 2004-2540767	20040927

EP 1668288 A1 20060614 EP 2004-768627 20040927  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, FI, RO, CY, AL, TR, BG, CZ, EE, HU, PL, SK  
 GB 2425777 A 20061108 GB 2006-9217 20040927  
 BR 2004014985 A 20061121 BR 2004-14985 20040927  
 NO 2006001956 A 20060502 NO 2006-1956 20060502  
 US 2007042911 A1 20070222 US 2006-574232 20060713  
 PRIORITY APPLN. INFO.: GB 2003-23067 A 20031002  
 GB 2004-4051 A 20040224  
 WO 2004-GB4083 W 20040927

OTHER SOURCE(S): MARPAT 142:466126

AB A viscous fluid, such as heavy crude oil which is too viscous to enable it to be pumped from a flowing phase of a reservoir into and along a pipeline for delivery to a refinery or other storage facility, may be contacted with a formulation to reduce its viscosity. The formulation comprises a polymeric material AA which includes -O- moieties pendent from a polymeric backbone thereof and said material is optionally cross-linked. In one embodiment, the formulation may comprise polyvinyl alc. In an alternative embodiment, the formulation may comprise a cross-linked polymeric material, such as cross-linked polyvinyl alc. After the viscous composition was transported to a desired location, it may be separated from the other components.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 29 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:951031 CAPLUS  
 DOCUMENT NUMBER: 143:250728  
 TITLE: System and method for polymer filter cake removal  
 INVENTOR(S): Rainbolt, Michael F.; Tullis, Andrew W.  
 PATENT ASSIGNEE(S): Encana Oil & Gas USA Inc., USA  
 SOURCE: U.S., 11 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6935426	B1	20050830	US 2003-357943	20030204
PRIORITY APPLN. INFO.:			US 2003-357943	20030204

AB Embodiments provide systems and methods in which a non-viscous fluid, having a heavy concentration of an appropriate breaker, is pumped into a well in front of viscosified fluid, such as a cross-linked polymeric fracturing fluid, to saturate permeable media with a breaker agent. When a polymer filter cake is subsequently formed on the surfaces of the media the breaker is provided good communication with the polymer filter cake for its breakdown and removal. Communication between the breaker and the polymer filter cake is substantially controlled by an operator in that the breaker remains saturated in the permeable media until such time as the operator decreases hydraulic pressure within the well to a point at which the hydraulic pressure of the media forces the breaker back into the well.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 30 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2006(16):9673 COMPENDEX  
 TITLE: Applications of polymeric materials in microfluidic devices.  
 AUTHOR: Moorthy, Jaisree; Beebe, David J.

MEETING TITLE: 05AICHe: 2005 AICHe Annual Meeting and Fall Showcase.  
MEETING LOCATION: Cincinnati, OH, United States  
MEETING DATE: 30 Oct 2005-04 Nov 2005  
SOURCE: AICHe Annual Meeting, Conference Proceedings 2005.p  
14185  
SOURCE: AICHe Annual Meeting, Conference Proceedings 2005.p  
14185  
SOURCE: 05AICHe: 2005 AICHe Annual Meeting and Fall Showcase,  
Conference Proceedings  
PUBLICATION YEAR: 2005  
MEETING NUMBER: 66925  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Experimental  
LANGUAGE: English

AN 2006(16):9673 COMPENDEX

AB Scaling down of laboratory workplace into "palm top" devices has shown great potential in developing point of care diagnostic devices, understanding cellular scale phenomena and characterizing various aspects of the "omics" research. Such a system would require a microfluidic based platform in order to manipulate samples, and components that can carry out specific tasks such as directing fluid flow, separation of biomolecules, and detection. We have exploited various properties of polymer materials to create these components. Hard polymers are used to create channels and provide mechanical framework of the microfluidic platform (skeleton). The responsive behavior of soft materials (hydrogels) is used to provide actuation in realizing components such as pump and clutch while the shape changing ability is exploited in making valves and sensors. Various strategies for developing sensors include incorporating sensitive cross-links in polymer-peptide hybrid constructs and coupling with other components to transfer and amplify the signals. In particular we are developing hybrid materials for detecting botulinum neurotoxin. We are also exploring the use of hydrogel nano-environments for use in biomolecular interaction studies via fluorescence resonance energy transfer. A key advantage of using polymer materials for making components is that the properties can be selected and "fine-tuned" as per the requirements by changing the composition of the polymer.

L7 ANSWER 31 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:267001 CAPLUS

DOCUMENT NUMBER: 142:458813

TITLE: Rhodopsin Reconstituted into a Planar-Supported Lipid Bilayer Retains Photoactivity after Cross-Linking Polymerization of Lipid Monomers

AUTHOR(S): Subramaniam, Varuni; Alves, Isabel D.; Salgado, Gilmar F. J.; Lau, Pick-Wei; Wysocki, Ronald J., Jr.; Salamon, Zdzislaw; Tollin, Gordon; Hruby, Victor J.; Brown, Michael F.; Saavedra, S. Scott

CORPORATE SOURCE: Department of Chemistry and Department of Biochemistry and Molecular Biophysics, University of Arizona, Tucson, AZ, 85721-0041, USA

SOURCE: Journal of the American Chemical Society (2005), 127(15), 5320-5321

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Transmembrane proteins (TMPs), particularly ion channels and receptors, play key roles in transport and signal transduction. Many of these proteins are pharmacol. important and therefore targets for drug discovery. TMPs can be reconstituted in planar-supported lipid bilayers

(PSLBs), which has led to development of TMP-based biosensors and biochips. However, PSLBs composed of natural lipids lack the high stability desired for many technol. applications. One strategy is to use synthetic lipid monomers that can be polymerized to form robust bilayers. A key question is how lipid polymerization affects TMP structure and activity.

In

this study, we have examined the effects of UV polymerization of bis-Sorbylphosphatidylcholine (bis-SorbPC) on the photoactivation of reconstituted bovine rhodopsin (Rho), a model G-protein-coupled receptor. Plasmon-waveguide resonance spectroscopy (PWR) was used to compare the degree of Rho incorporation and activation in fluid and poly(lipid) PSLBs. The results show that reconstitution of Rho into a supported lipid bilayer composed only of bis-SorbPC, followed by photoinduced lipid crosslinking, does not measurably diminish protein function.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 32 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2005(18):5832 COMPENDEX

TITLE: Microfluidic platform for the generation of organic-phase microreactors.

AUTHOR: Cygan, Zuzanna T. (Polymers Division Natl. Inst. of Std. and Technology, Gaithersburg, MD 20899, United States); Cabral, Joao T.; Beers, Kathryn L.; Amis, Eric J.

SOURCE: Langmuir v 21 n 8 Apr 12 2005 2005.p 3629-3634

SOURCE: Langmuir v 21 n 8 Apr 12 2005 2005.p 3629-3634

CODEN: LANGD5 ISSN: 0743-7463

PUBLICATION YEAR: 2005

DOCUMENT TYPE: Journal

TREATMENT CODE: Bibliography; Theoretical; Experimental

LANGUAGE: English

AN 2005(18):5832 COMPENDEX

AB Rapid prototyping photolithography of a thiolene-based resin was used to fabricate microfluidic devices stable to aliphatic and aromatic organic solvents. The swelling of the cross-linked polymer matrix in various organic solvents was quantified, and the solvent resistance properties of these microfluidic devices are described. Discrete droplets of hexanes and toluene of uniform size were generated in microfluidic devices inside a water matrix containing SDS surfactant (SDS = sodium dodecyl sulfate). Variation of water and organic flow rates in the fluidic channels was used to control droplet size and separation. Droplet composition could be controlled by varying flow rates of two joined organic streams. Organic-phase synthetic reactions within the droplets were demonstrated with the bromination of alkenes inside benzene droplets. \$CPY 2005 American Chemical Society. 51 Refs.

L7 ANSWER 33 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2005(51):13452 COMPENDEX

TITLE: Direct-write e-beam patterning of stimuli-responsive hydrogel nanostructures.

AUTHOR: Tirumala, Vijay R. (Polymers Division National Institute of Standards and Technology Stop 8541); Divan, Ralu; Ocola, Leonidas E.; Mancini, Derrick C.

SOURCE: Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures v 23 n 6 November/December 2005 2005.p 3124-3128

SOURCE: Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures v 23 n 6 November/December 2005 2005.p 3124-3128  
CODEN: JVTBD9 ISSN: 1071-1023

PUBLICATION YEAR: 2005  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: English

AN 2005(51):13452 COMPENDEX

AB The need for stimuli-responsive components in microfluidic systems has led to the development of hydrogel-based patterned microstructures. The most commonly practiced means for fabricating micropatterned hydrogels is based on in situ photopolymerization using 365 nm UV light in a liquid medium. This approach has been found to be very successful for patterning hydrogel-based features with tens or hundreds of microns resolution, but its main drawback lies in having to contain the liquid prepolymer mixture within the device for irradiation. We instead propose an alternate approach that uses direct-write electron-beam radiation to cross-link a dry, spin-coated thin film of linear polymer. After exposure, the linear polymer is dissolved in water leaving behind the cross-linked regions. When immersed in water, the cross-linked regions assume the properties of hydrogel and undergo naturally thermoreversible swelling and shrinking. This direct-writing approach can be used to fabricate hydrogel-based nanostructures down to 100 nm linewidth and also is amenable to easy integration into nano and bio devices. We focus on patterning a well-known thermoreversible hydrogel, poly (N - isopropylacrylamide), and use it to discuss various aspects of process methodology, fabrication, characterization, and stimuli-response properties of nanosized hydrogels in detail. \$CPY 2005 American Vacuum Society. 10 Refs.

L7 ANSWER 34 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2005:60067 CAPLUS

DOCUMENT NUMBER: 142:347639

TITLE: Sol-Gel Modified Poly(dimethylsiloxane)  
Microfluidic Devices with High Electroosmotic  
Mobilities and Hydrophilic Channel Wall  
Characteristics

AUTHOR(S): Roman, Gregory T.; Hlaus, Tyler; Bass, Kevin J.;  
Seelhammer, Todd G.; Culbertson, Christopher T.

CORPORATE SOURCE: Kansas State University, Manhattan, KS, 66506, USA

SOURCE: Analytical Chemistry (2005), 77(5), 1414-1422

CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Using a sol-gel method, the authors have fabricated poly(dimethylsiloxane) (PDMS) microchips with SiO<sub>2</sub> particles homogeneously distributed within the PDMS polymer matrix. These particles are .apprx.10 nm in diameter. To fabricate such devices, PDMS (Sylgard 184) was cast against SU-8 molds. After curing, the chips were carefully removed from the mold and sealed against flat, cured pieces of PDMS to form enclosed channel manifolds. These chips were then solvated in tetra-Et orthosilicate (TEOS), causing them to expand. Subsequently, the chips were placed in an aqueous solution containing 2.8% ethylamine and heated to form nanometer-sized SiO<sub>2</sub> particles within the cross-linked PDMS polymer. The water contact angle for the PDMS-SiO<sub>2</sub> chips was .apprx.90.2° compared to a water contact angle for Sylgard 184 of .apprx.108.5°. More importantly, the SiO<sub>2</sub> modified PDMS chips showed no rhodamine B absorption after 4 h, indicating a substantially more hydrophilic and non-absorptive surface than native PDMS. Initial electroosmotic mobilities (EOM) of  $(8.3 \pm 0.2) \times 10^{-4} \text{ cm}^2/(\text{V}\cdot\text{s})$  (relative standard deviation = 2.6% (relative standard deviation is relative standard deviation); n = 10) were measured. This value was approx. twice that of native Sylgard 184 PDMS chips  $(4.21 \pm 0.09) \times 10^{-4} \text{ cm}^2/(\text{V}\cdot\text{s})$  (relative

standard deviation = 2.2%; n = 10) and 55% greater than glass chips ( $5.3 \pm 0.4$ ) +  $10^{-4}$  cm<sup>2</sup>/(V·s) (relative standard deviation = 7.7%; n = 5). After 60 days of dry storage, the EOM was ( $7.6 \pm 0.3$ ) +  $10^{-4}$  cm<sup>2</sup>/(V·s) (relative standard deviation = 3.9%; n = 3), a decrease of only 8% below that of the initially measured value. Sepns. performed on these devices generated 80,000-100,000 theor. plates in 6-14 s for both tetramethylrhodamine succinimidyl ester and fluorescein-5-isothiocyanate derivatized amino acids. The separation distance was 3.5 cm. Plots of peak variance vs. analyte migration times gave diffusion coeffs. which indicate that the separation efficiencies are within 15% of the diffusion limit.

REFERENCE COUNT: 81 THERE ARE 81 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 35 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2005(31):3138 COMPENDEX

TITLE: A decision analysis approach to hydraulic fracture optimization in the W31S stevens oil zone, Elk Hills Field, California.

AUTHOR: Agiddi, D.O.

MEETING TITLE: 2005 SPE Western Regional Meeting: Diverse Challenges Out West.

MEETING ORGANIZER: OXY

MEETING LOCATION: Irvine, CA, United States

MEETING DATE: 30 Mar 2005-01 Apr 2005

SOURCE: SPE Western Regional Meeting, Proceedings 2005.p 541-552

SOURCE: SPE Western Regional Meeting, Proceedings 2005.p 541-552

SOURCE: 2005 SPE Western Regional Meeting: Diverse Challenges Out West, Proceedings CODEN: PWPEE4

PUBLICATION YEAR: 2005

MEETING NUMBER: 65270

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical

LANGUAGE: English

AN 2005(31):3138 COMPENDEX

AB Since 1999, hydraulic fracture stimulation in the layered W31S Stevens reservoir, Elk Hills, has increased productivity of new infill wells. One to six months increase in production of well over 300 percent in barrels of oil equivalent per day (BOEPD) has been achieved. Since 2002, optimization in treatment fluid has lead to a change from conventional borate cross-linked, guar-based polymers to new gel technologies with low polymer concentrations designed to minimize formation damage - an important consideration for the declining reservoir pressure and the low permeability rock in W31S sand. New available fluids combine stable downhole rheology with enhanced visco-elastic properties to provide good proppant transport capabilities. Infill drilling activity in the W31S zone has recently moved from the flank areas of the 31S structure to up-dip locations with higher vertical rock stress difference, less thick pay, and higher gas-to-oil ratios. Different fracture monitoring and diagnostic data, including a down hole treatment pressure survey, has been acquired to characterize fracture growth profile and to optimize the W31S fracture design model. Review of recent well performance and treatment data suggests that, though productivity gains are realized from improved clean-up characteristics of the new fracturing fluids, achieving full vertical coverage and design conductivity remains a great challenge. This has huge implications for the economics of the development drilling in the up-structure locations. This paper introduces a quantitative fracturing treatment option model as a useful communications tool for selecting the treatment with the best chance for economic



L7 ANSWER 36 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:194603 CAPLUS

TITLE: Polymer brushes: From synthesis to "smart surfaces"

AUTHOR(S): Huck, Wilhelm T. S.; Brown, Andrew A.; Edmondson, Steve; Khan, Neelam S.

CORPORATE SOURCE: Melville Laboratory, Department of Chemistry, University of Cambridge, Cambridge, CB2 1EW, UK

SOURCE: Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), POLY-507. American Chemical Society: Washington, D. C.

CODEN: 69GQMP

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB Polymer brushes produced by controlled surface-initiated polymerization provide a

route to surfaces coated with well-defined thin polymer films that are covalently bound to the substrate. We have made significant progress in growing functional brushes using (aqueous) ATRP. This talk will discuss recent progress in exploiting such brushes in the fabrication of responsive biocompatible surfaces, the formation of cross-linked 2D polymers and initial results on brushes in microfluidic devices.

L7 ANSWER 37 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2005(30):5031 COMPENDEX

TITLE: Guest-controlling effects on ER behaviors of beta-cyclodextrin polymer.

AUTHOR: Gao, Zi-Wei (Institute of Electrorheological Technology 141# Department of Applied Physics Northwestern Polytechnical University, Xi'an 710072, China); Zhao, Xiao-Peng

SOURCE: Journal of Colloid and Interface Science v 289 n 1 Sep 1 2005 2005.p 56-62

SOURCE: Journal of Colloid and Interface Science v 289 n 1 Sep 1 2005 2005.p 56-62

CODEN: JCISA5 ISSN: 0021-9797

PUBLICATION YEAR: 2005

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2005(30):5031 COMPENDEX

AB An effective and novel approach to obtaining electrorheological particles with high performance through the formation of host-guest complexes has been achieved. The significant preponderance of the host-guest complex formation is that the host structure can be controlled easily by adding different guests. Based on this point, six supramolecular complexes of beta-cyclodextrin cross-linking polymer with salicylic acid (beta-CDP-1), 5-chlorosalicylic acid (beta-CDP-2), 3,5-dichlorosalicylic acid (beta-CDP-3), 5-nitrosalicylic acid (beta-CDP-4), 3,5-dinitrosalicylic acid (beta-CDP-5), or 3-hydroxy-2-naphthoic acid (beta-CDP-6) particles were synthesized. The electrorheological yield stresses of the suspensions of these particles in silicone oil have been investigated under DC electric fields. It was found that the yield stress of the typical beta-CDP-1 ER fluid was 5.6 kPa in 4 kV/mm, which is much higher than that of pure beta-cyclodextrin polymer (beta-CDP), that of pure salicylic acid as well as that of the mixture of the host with the guest. It is clearly indicated that the formation of supramolecular complexes between beta-CDP and salicylic acid can enhance the ER properties of the host. The similar results for other supramolecular complexes with different guests have also been

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
 SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
 TD, TG

AU 2004221648 A1 20040930 AU 2004-221648 20040317  
 EP 1611313 A2 20060104 EP 2004-721238 20040317  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK  
 BR 2004008450 A 20060404 BR 2004-8450 20040317  
 MX 2005PA10022 A 20060310 MX 2005-PA10022 20050920  
 NO 2005004746 A 20051014 NO 2005-4746 20051014  
 US 2006102351 A1 20060518 US 2005-549634 20051129  
 PRIORITY APPLN. INFO.: GB 2003-6333 A 20030320  
 WO 2004-GB1126 W 20040317

AB Water problems in the production of oil or gas from subterranean formations is addressed by providing a method of restricting passage of a fluid from a first location to a second location in a subterranean formation by injecting into the formation a formulation comprising a first material, for example a dialdehyde, arranged to cross-link a second polymeric material, for example a polyvinyl alc., thereby to form a polymeric material of high viscosity which may block the passage between the first and second locations.

L7 ANSWER 40 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1847 CAPLUS  
 DOCUMENT NUMBER: 142:105593  
 TITLE: Fluidic MEMS device  
 INVENTOR(S): Chen, Chien-hua; Yang, Xia Feng  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 33 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004265182	A1	20041230	US 2003-606023	20030624
WO 2005005046	A2	20050120	WO 2004-US18628	20040610
WO 2005005046	A3	20050811		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1635947	A2	20060322	EP 2004-755029	20040610
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1809421	A	20060726	CN 2004-80017253	20040610
PRIORITY APPLN. INFO.:			US 2003-606023	A 20030624
			WO 2004-US18628	W 20040610

AB A fluidic micro electro-mech. system (MEMS) device is described. In one aspect, at least one at least partially covered fluidic channel is formed between a polymer layer and a

polymer substrate as the polymer layer is deposited on the substrate. The partially covered fluidic channel is fabricated as a unitary polymer layer structure. In one implementation, a strong exposure process is applied to the polymer layer to create a deep cross-linked polymer region. A weak exposure process is applied to the polymer layer to create a shallow cross-linked polymer region.

L7 ANSWER 41 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2004:1019353 CAPLUS  
 DOCUMENT NUMBER: 141:426043  
 TITLE: Method for hydraulic fracturing with squeeze pressure  
 INVENTOR(S): Cooke, Claude E.  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 14 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004231849	A1	20041125	US 2004-801461	20040316
US 7069994	B2	20060704		

PRIORITY APPLN. INFO.: US 2003-455635P P 20030318

AB Method for hydraulic fracturing of wells by transporting a cross-linked polymer containing a proppant down a wellbore in a carrier fluid, allowing the cross-linked polymer to coalesce into a polymer phase and squeezing the cross-linked polymer as a fracturing fluid is provided. Composition of the cross-linked polymer solution and the selection of additives may be varied to adjust the viscosity, degradation time and other properties of the fracturing fluid.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 42 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2004:664697 CAPLUS  
 DOCUMENT NUMBER: 141:298412  
 TITLE: Polymer-thickened drilling fluid  
 INVENTOR(S): Kurochkin, B. M.; Bikchurin, T. N.; Antipov, A. P.; Bikbulatov, R. R.; Vakula, A. Ya.; Maksimov, V. N.; Kondrat'ev, A. A.  
 PATENT ASSIGNEE(S): Obshchestvo Ogranichennoi Otvetstvennost'yu "Tatneft-Burenie", Russia  
 SOURCE: Russ., No pp. given  
 CODEN: RUXXE7  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Russian  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2232178	C2	20040710	RU 2002-120545	20020729
			RU 2002-120545	20020729

PRIORITY APPLN. INFO.:

AB A petroleum or natural gas well drilling fluid includes a mud solution, soda ash, CM-cellulose, and a cross-linked water-swelling polyacrylamide-type polymer. This formulation reduced the loss of fluid during the boring operation and improved formation exposure quality.

L7 ANSWER 43 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 2004:629736 CAPLUS

DOCUMENT NUMBER: 141:273807

TITLE: Sparsely Cross-Linked "Nanogel"  
Matrixes as Fluid, Mechanically Stabilized  
Polymer Networks for High-Throughput  
Microchannel DNA Sequencing

AUTHOR(S): Doherty, Erin A. S.; Kan, Cheuk-Wai; Paegel, Brian M.;  
Yeung, Stephanie H. I.; Cao, Shitong; Mathies, Richard  
A.; Barron, Annelise E.

CORPORATE SOURCE: Department of Chemical and Biological Engineering,  
Northwestern University, Evanston, IL, 60208, USA

SOURCE: Analytical Chemistry (2004), 76(18), 5249-5256

CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have developed sparsely cross-linked "nanogels",  
subcolloidal polymer structures composed of covalently linked,  
linear polyacrylamide chains, as novel replaceable DNA sequencing matrixes  
for capillary and microchip electrophoresis. Nanogels were synthesized  
via inverse emulsion (water-in-oil) copolymer of acrylamide and a low  
percentage (.apprx.10-4 mol %) of N,N-methylene bisacrylamide (Bis).  
Nanogels and nanogel networks were characterized by multiangle laser light  
scattering and rheometry, resp., and tested for DNA sequencing in both  
capillaries and chips with four-color LIF detection. Typical  
nanogels have an average radius of .apprx.230 nm, with .apprx.75% of chains  
incorporating a Bis cross-linker. The properties and performance of  
nanogel matrixes are compared here to those of a linear polyacrylamide  
(LPA) network, matched for both polymer weight-average molar mass (Mw) and the  
extent of interchain entanglements (c/c\*). At sequencing concns., the two  
matrixes have similar flow characteristics, important for capillary and  
microchip loading. However, because of the phys. network stability  
provided by the internally cross-linked structure of the nanogels,  
substantially longer average read lengths are obtained under standard  
conditions

with the nanogel matrix at a 98.5% accuracy of base-calling (for CE: 680  
bases, an 18.7% improvement over LPA, with the best reads as long as 726  
bases, compared to 568 bases for the LPA matrix). We further investigated  
the use of the nanogel matrixes in a high-throughput microfabricated DNA  
sequencing device consists of 96 separation channels densely  
fabricated on a 6-in. glass wafer. Again, preliminary DNA sequencing  
results show that the nanogel matrixes are capable of delivering  
significantly longer average read length, compared to an LPA matrix of  
comparable properties. Moreover, nanogel matrixes require 30% less  
polymer per unit volume than LPA. The addition of a small amount of low molar  
mass LPA or ultrahigh molar mass LPA to the optimized nanogel sequencing  
matrix further improves read length as well as the  
reproducibility of read length (RSD < 1.6%). This is the first report of  
a replaceable DNA sequencing matrix that provides better performance than  
LPA, in a side-by-side comparison of polymer matrixes appropriately  
matched for molar mass and the extent of interchain entanglements. These  
results could have significant implications for the improvement of  
microchip-based DNA sequencing technol.

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 44 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 4

ACCESSION NUMBER: 2004(51):7553 COMPENDEX

TITLE: Effect of post-mold curing on package reliability.

AUTHOR: Mengel, Manfred (CAT AIT TI, 93049 Regensburg,  
Germany); Mahler, Joachim; Schober, Wolfgang

SOURCE: Journal of Reinforced Plastics and Composites v 23 n 16 2004.p 1755-1765

SOURCE: Journal of Reinforced Plastics and Composites v 23 n 16 2004.p 1755-1765

CODEN: JRPCDW ISSN: 0731-6844

PUBLICATION YEAR: 2004

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical

LANGUAGE: English

AN 2004(51):7553 COMPENDEX

AB Silica filled epoxy resins as encapsulation in chip packages reveal a major influence on the reliability and functionality of microelectronic devices. In this study, the resulting effects of post-mold curing (PMC) on the thermomechanical and chemical properties of different mold compounds were observed. Polymer systems of the investigated mold compounds were based on two orthocresol novolacs (OCN), one biphenyl and one multifunctional resin (MFR). It could be shown, that longer thermal treatment after curing leads in general to further cross-linking of the polymer chains and increases the glass transition temperature T<sub>g</sub>. Therefore, the temperature resistance of the mold for following process steps after package assembling, like soldering, can be improved as well as the reliability during temperature cycle tests. However, PMC treatment also increases the moisture absorption. Here, MFR mold exhibit the highest moisture absorption. Also the high T<sub>g</sub> of the MFR mold is not much influenced by PMC. Hence, further thermal treatment after curing of the MFR mold is not necessary. In case of OCN and biphenyl mold types, the advantages of PMC are predominating. 16 Refs.

L7 ANSWER 45 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 5

ACCESSION NUMBER: 2004(30):3508 COMPENDEX

TITLE: High-resolution patterning and transfer of thin PDMS films: FABRICATION of hybrid self-sealing 3D microfluidic systems.

AUTHOR: Kloter, U. (IBM Research IBM Zurich Research Laboratory, 8803 Ruschlikon, Switzerland); Schmid, H.; Wolf, H.; Michel, B.; Juncker, D.

MEETING TITLE: 17th IEEE International Conference on Micro Electro Mechanical Systems (MEMS): Maastricht MEMS 2004 Technical Digest.

MEETING ORGANIZER: IEEE, Robotics and Automation Society

MEETING LOCATION: Maastricht, Netherlands

MEETING DATE: 25 Jan 2004-29 Jan 2004

SOURCE: Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (MEMS) 2004.p 745-748, (IEEE cat n 04CH37517)

SOURCE: Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (MEMS) 2004.p 745-748, (IEEE cat n 04CH37517)

CODEN: PMEME5 ISSN: 1084-6999

PUBLICATION YEAR: 2004

MEETING NUMBER: 63290

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Theoretical

LANGUAGE: English

AN 2004(30):3508 COMPENDEX

AB This paper describes the fabrication procedure for a hybrid elastomer-Si structure. The procedure comprises embossing and curing a thin film in poly(dimethylsiloxane) (PDMS) with vias in the 30-micrometer regime, followed by a double transfer, first to an intermediate substrate and then, with registration, to the micromachined Si structure. A well-defined adhesion between the PDMS film, the mold, the transfer substrate and the target wafer is key to each successful transfer, and plays a

crucial role in the efficient removal of nanometer-thick residual membranes that systematically obstruct vias formed by embossing. Inhibition of the cross-linking of the PDMS pre-polymer in the presence of SU-8 photoresist was observed, and overcome for our case. We fabricated hybrid PDMS-Si microfluidic systems that can be sealed reversibly on any smooth and flat substrate, and filled with different solutions. 11 Refs.

L7 ANSWER 46 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:505320 CAPLUS  
DOCUMENT NUMBER: 144:276626  
TITLE: Permeability modification for CO2 EOR  
AUTHOR(S): Tian, Genlin; Tao, Cheng; Qu, Renwei; Han, Wei; Deng, Jianjiang; Behrenbruch, Peter  
CORPORATE SOURCE: Australia School of Petroleum, The University of Adelaide, Australia  
SOURCE: Studies in Surface Science and Catalysis (2004), 153(Carbon Dioxide Utilization for Global Sustainability), 435-440  
CODEN: SSCTDM; ISSN: 0167-2991  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Most of reservoirs are heterogeneous. When CO2 is injected into reservoir, it may break through in higher permeability region or big channel. Such break through causes great pressure drop down and can make CO2 flow out in gas state without displacement of oil. To avoid this, by employing a polymer gel, a combination permeability modification method were developed to improve CO2 EOR efficiency. A strong gel is formed using the solution of polymer monomer mixed with other additives. Its viscosity is very low and can be easily injected into big channel. This solution reacts under in-situ conditions and forms a strong gel. Because this solution fills in connected pores, after reaction it forms a 3-dimensional network with sand grains inside, to prevent CO2 break through. By a change in chemical composition, the reaction time can be controlled from 0.5 to 24 h. Movable gel is a cross-linked polymer. It can be used to modify the permeability of high mobility regions. The solution for such gel is the mixture of polymer and crosslinker. Polymer concentration can be chosen from 500-20000 mg/L according to the permeability ratio. With modification, a relatively uniform permeability can be obtained. With injection of CO2, higher sweep efficiency and higher recovery can be reached. And the important thing is that CO2 can be used effectively.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 47 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:936442 CAPLUS  
DOCUMENT NUMBER: 142:478254  
TITLE: Hydrogel based environments for biomolecular interactions studies  
AUTHOR(S): Moorthy, Jaisree; Bergendahl, Veit; Burgess, Richard R.; Beebe, David J.  
CORPORATE SOURCE: Department of Biomedical Engineering, University of Wisconsin, Madison, WI, 53706, USA  
SOURCE: Special Publication - Royal Society of Chemistry (2004), 297(Micro Total Analysis Systems 2004, Volume 2), 240-242  
CODEN: SROCD0; ISSN: 0260-6291  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Hydrogel (hydrophilic cross-linked polymer)  
posts were used as model environments for studying the interaction between  
sigma and core subunits of RNA polymerase (Escherichia coli) via  
fluorescence resonance energy transfer (FRET). Microfluidic  
channels and polyacrylamide posts were polymerized inside a shallow  
cavity using liquid phase photo-polymerization. As a first step, the crowding  
inside the cell will be mimicked with hydrogel posts of varying monomer  
composition. FRET occurs when two proteins labeled with suitable dyes are in  
close proximity (1-10 nm) and the excitation of an acceptor dye overlaps  
sufficiently with the emission of the donor dye. FRET preliminary images  
suggest that a higher fraction of the proteins interact (i.e. are in close  
proximity) inside the hydrogel in comparison to the solution. This could be  
due to higher local concentration of biomols. inside the hydrogel as smaller  
volume

is available to the proteins. The microfluidic based cell mimic  
platform will find applications in proteomics where protein networks can  
be characterized in a high throughput manner in vivo - like environments.  
The ability to more accurately predict in vivo interactions via in vitro  
tests could have a dramatic impact on the drug development field.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 48 OF 99 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2004:8208440 INSPEC

DOCUMENT NUMBER: A2005-02-8780B-031

TITLE: Novel transducers for nano-optical biosensor  
chips based on biological and synthetic  
polymers with analyte-dependent swelling/shrinking  
behavior

AUTHOR: Lepek, M.; Pittner, F. (Inst. fur Biochem. und  
Molekulare Zellbiologie, Wien Univ., Vienna, Austria)

SOURCE: Journal of Nanoscience and Nanotechnology (Jan.-Feb.  
2004), vol.4, no.1-2, p. 106-14, 7 refs.

CODEN: JNNOAR, ISSN: 1533-4880

SICI: 1533-4880(200401/02)4:1/2L.106:NTNO;1-I

Published by: American Scientific Publishers, USA

DOCUMENT TYPE: Journal

TREATMENT CODE: Practical; Experimental

COUNTRY: United States

LANGUAGE: English

AN 2004:8208440 INSPEC DN A2005-02-8780B-031

AB Analyte-dependent swelling/shrinking properties of ultrathin polymer  
layers are an appropriate means for the detection of various analytes.  
Optical metal nanoclusters can be used to determine the change of the  
layer's thickness, which is shown by a change in the color of the  
chip. By using different cross-linking agents  
and different polymers (biological or artificial as  
well) it was possible to design various sensitive layers showing  
different swelling/shrinking behaviors. Sensitivity on various analytes  
could be observed, since the different types of polymers employed  
differed in structure, functional groups, or biorecognitive properties

L7 ANSWER 49 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:784625 CAPLUS

DOCUMENT NUMBER: 139:294274

TITLE: Lost circulation material and method of use

INVENTOR(S): Cremeans, Keet Stene; Cremeans, Jim G.

PATENT ASSIGNEE(S): USA

SOURCE: U.S., 4 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6630429	B1	20031007	US 2000-752499	20001228
PRIORITY APPLN. INFO.:			US 1999-173616P	P 19991229

AB An environmentally safe lost circulation material and method of use which provides effective drill bit lubrication over a wide temperature range and allows drilling in a variety of porous or fractured subterranean structures. The lost circulation material comprises generally pelletized cottonseed hulls together with between .apprx.0.001% and 0.01% by weight of preservative. In another preferred embodiment of the invention, the lost circulation material comprises of between .apprx.98% and 99.5% by weight of pelletized cottonseed hulls, between .apprx.0.5% and 2.0% by weight of corn starch, between .apprx.0.001% and 0.01% by weight of surfactant, and between .apprx.0.001% and 0.01% by weight of preservative. In another preferred embodiment, the lost circulation material comprises between .apprx.50% and 80% by weight of pelletized cottonseed hulls, between .apprx.10% and 40% by weight of pelletized wood, between .apprx.0.001% and 20% by weight of water-swallowable cross-linked polymer, between .apprx.0.5% and 2.0% by weight corn starch or other vegetable starch, between .apprx.0.001% and 0.01% by weight of surfactant, and between .apprx.0.001% and 0.01% by weight of preservative.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 50 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:614585 CAPLUS

DOCUMENT NUMBER: 139:242447

TITLE: Monitoring hydrogen peroxide in the extracellular space of the brain with amperometric microsensors

AUTHOR(S): Kulagina, Nadezhda V.; Michael, Adrian C.

CORPORATE SOURCE: Department of Chemistry, University of Pittsburgh, Pittsburgh, PA, 15260, USA

SOURCE: Analytical Chemistry (2003), 75(18), 4875-4881  
CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Interest in the detection of hydrogen peroxide in living brain tissue is growing for several reasons. Peroxide and other reactive oxygen species are implicated in neurodegenerative disorders and appear to have neuromodulatory functions in the brain. Also, there is a need to measure peroxide levels as a companion to measurements with amperometric sensors that rely on enzymes to generate peroxide for the detection of glutamate, choline, and glucose. Herein, we report on measurements performed in the brain of anesthetized rats with carbon fiber amperometric sensors coated with a cross-linked redox polymer film that contains horseradish peroxidase. Prior work with these sensors has established that they are both sensitive and selective toward hydrogen peroxide. When implanted in the striatal region of the rat brain, a biphasic response is observed upon elec. stimulation of the dopaminergic pathway that innervates the striatal tissue. No response is observed at sensors lacking HRP, which are not sensitive to peroxide, suggesting that the biphasic response is due to the production of hydrogen peroxide by two sep. mechanisms. Addnl. measurements of dopamine and oxygen, and the administration of two drugs with well-known effects on the biochem. kinetics of the dopamine neurons, are used to identify those mechanisms. One appears to be the production of peroxide upon the oxidation of dopamine by mol. oxygen. This occurs during the elec. stimulation itself, which elevates both dopamine and oxygen levels in the extracellular space. The other appears to be the production of peroxide as a byproduct in the oxidative metabolic conversion of dopamine to DOPAC by the mitochondrial



enzyme, monoamine oxidase. The production of peroxide due to dopamine metabolism

is also observed after rats receive a dose of L-DOPA, a drug used in the treatment of Parkinson's disease.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 51 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 6

ACCESSION NUMBER: 2003(31):1207 COMPENDEX

TITLE: Enhancing electrorheological behaviors with formation of beta-cyclodextrin supramolecular complex.

AUTHOR: Gao, Ziwei; Zhao, Xiaopeng

SOURCE: Polymer v 44 n 16 Jul 10 2003 2003.p 4519-4526

SOURCE: Polymer v 44 n 16 Jul 10 2003 2003.p 4519-4526

CODEN: POLMAG ISSN: 0032-3861

PUBLICATION YEAR: 2003

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2003(31):1207 COMPENDEX

AB According to the point that the host structure and the properties can be easily modified by the formation of host-guest complex, the supramolecular complexes of beta-cyclodextrin cross-linking polymer/1-(2-pyridylazo)-2-naphthol (beta-CDP-PAN) particles were synthesized. Then the electrorheological properties of the suspensions of beta-CDP-PAN particles in silicone oil have been investigated under DC electric fields. It was found that the yield stress of the typical beta-CDP-PAN ER fluid was 6.16 KPa in 5 kV/mm, which is much higher than that of pure beta-cyclodextrin polymer (beta-CDP), that of pure 1-(2-pyridylazo)-2-naphthol (PAN) as well as that of the mixture of the host with the guest (beta-CDP + PAN). The structure of beta-CDP-PAN was characterized by the fluorescence analysis and IR spectrometry, respectively. The results confirmed that the naphthalene ring of PAN is included in the cavity of beta-CDP. Just as expected, the improvement of dielectric constant, conductivity and loss tangent of beta-CDP resulted in good ER effect of beta-CDP-PAN. Furthermore, it was found that the cross-linking degree (CLD) of the polymer strongly influences the ER behavior of beta-CDP-PAN and beta-CDP. When CLD remains in the range of 4-6, beta-CDP-PAN exhibits much stronger ER effect, and for beta-CDP, its suitable range is 5-8. \$CPY 2003 Elsevier Science Ltd. All rights reserved. 41 Refs.

L7 ANSWER 52 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2003(31):1199 COMPENDEX

TITLE: Photo cross-linkable poly (N-isopropylacrylamide) copolymers III: Micro-fabricated temperature responsive hydrogels.

AUTHOR: Kuckling, Dirk (Inst. Macromolec. Chem./Text. Chem. Dresden University of Technology, D-01062 Dresden, Germany); Hoffmann, Jan; Plotner, Matthias; Ferse, Dirk; Kretschmer, Katja; Adler, Hans-Jurgen P.; Arndt, Karl-Friedrich; Reicheltd, Rudolf

SOURCE: Polymer v 44 n 16 Jul 10 2003 2003.p 4455-4462

SOURCE: Polymer v 44 n 16 Jul 10 2003 2003.p 4455-4462

CODEN: POLMAG ISSN: 0032-3861

PUBLICATION YEAR: 2003

DOCUMENT TYPE: Journal

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2003(31):1199 COMPENDEX

AB Micro-fabricated temperature responsive poly(N-isopropylacrylamide) (PNIPAAm) hydrogels were produced by photolithographic patterning of photo cross-linkable polymers. These

polymers were synthesized by copolymerization of N-isopropylacrylamide (NIPAAm) and 2-(dimethyl maleimido)-N-ethylacrylamide (DMIAAm). The patterning process of polymers with 9.2 mol% DMIAAm and film thickness below 5  $\mu\text{m}$  in the dry state was able to depict a lateral resolution of 4  $\mu\text{m}$  with insignificant shape change. In order to increase the adhesion of the swollen hydrogels, and thus, the resolution of a particular pattern, a special adhesion promoter based on a monochlorosilane anchor group and a chromophore head group was synthesized. If a silicon wafer surface was pretreated with the adhesion promoter, the structures were stable and well adhered even at lower cross-linking densities. The hydrogels are suitable as working substances for microactuators because of their thermally induced volume changes. The swelling ratio of the pattern at low temperatures increased with a decreased cross-linking density. As expected from the chemical composition of the gels, the phase transition temperature ( $T_c$ ) decreased with increasing DMIAAm content. The swelling of microstructures in water in comparison to macroscopic objects occurred significantly faster. This behavior was attributed to the small gel dimension but it was even more pronounced because of the sponge-like nanostructure of the hydrogels characterized by high-resolution field emission scanning electron microscopy. Suitable applications of these hydrogels are adjusting limbs in fluid micro-systems such as micro-pumps and micro-valves.

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L7 ANSWER 53 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:40695 CAPLUS

DOCUMENT NUMBER: 140:213250

TITLE: Sparsely cross-linked "nanogels" for microchannel DNA sequencing

AUTHOR(S): Doherty, Erin A. S.; Kan, Cheuk Wai; Barron, Annelise E.

CORPORATE SOURCE: Department of Chemical Engineering, Northwestern University, Evanston, IL, USA

SOURCE: Electrophoresis (2003), 24(24), 4170-4180

CODEN: ELCTDN; ISSN: 0173-0835

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We have developed sparsely cross-linked "nanogels", sub-colloidal polymer structures composed of covalently linked, linear polyacrylamide chains, as novel DNA sequencing matrixes for capillary electrophoresis. The presence of covalent cross-links affords nanogel matrixes with enhanced network stability relative to standard, linear polyacrylamide (LPA), improving the separation of large DNA fragments. Nanogels were synthesized via inverse emulsion (water-in-oil) copolymerization of acrylamide and N,N-methylenebisacrylamide (Bis). In order to retain the fluidity necessary in a replaceable polymer matrix for capillary array electrophoresis (CAE), a low percentage of the Bis cross-linker (< 10-4 mol%) was used. Nanogels were characterized by multiangle laser light scattering and rheometry, and were tested for DNA sequencing by CAE with four-color laser-induced fluorescence (LIF) detection. The properties and performance of nanogel matrixes were compared to those of a com. available LPA network, which was matched for both weight-average molar

mass (Mw) and extent of interchain entanglements ( $c/c^*$ ). Nanogels presented in this work have an average radius of gyration of 226 nm and a weight-average

molar mass of  $8.8 \times 10^6$  g/mol. At concns. above the overlap threshold, nanogels form a clear, viscous solution, similar to the LPA matrix (Mw .apprx.  $8.9 \times 10^6$  g/mol). The two matrixes have similar flow and viscosity characteristics. However, because of the phys. network stability provided by the internally cross-linked structure of the nanogels, a substantially longer read length (.apprx. 63 bases, a 10.4%

improvement) is obtained with the nanogel matrix at 98.5% accuracy of base-calling. The nanogel network provides higher-selectivity separation of ssDNA sequencing fragments longer than 375 bases. Moreover, nanogel matrixes require 30% less polymer per unit volume than LPA. This is the first report of a sequencing matrix that provides better performance than LPA, in a side-by-side comparison of polymer matrixes matched for Mw and extent of interchain entanglements.

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 54 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 7

ACCESSION NUMBER: 2003:955034 CAPLUS

DOCUMENT NUMBER: 140:121712

TITLE: Monolithic valves for microfluidic chips based on thermoresponsive polymer gels

AUTHOR(S): Luo, Quanzhou; Mutlu, Senol; Gianchandani, Yogesh B.; Svec, Frantisek; Frechet, Jean M. J.

CORPORATE SOURCE: Department of Chemistry, University of California, Berkeley, CA, USA

SOURCE: Electrophoresis (2003), 24(21), 3694-3702

CODEN: ELCTDN; ISSN: 0173-0835

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The direct preparation of thermoresponsive monolithic copolymers by photopatterning of a liquid phase consisting of an aqueous solution of N-isopropylacrylamide, N-ethylacrylamide, N,N'-methylenebisacrylamide, and 4,4'-azobis(4-cyanovaleric acid) was studied and the products used as valves within the channels of microfluidic devices. The volume change associated with the polymer phase transition at its lower critical solution temperature (LCST) leads to the rapid swelling and the deswelling of the 2.5% cross-linked monolithic gel thus enabling the polymer to close or open the channel and to function as a nonmechanically actuated valve. The LCST at which the valve switches was easily adjusted within a range of 35°-74° by varying the proportions of the monovinyl monomers in the polymerization mixture. The closed valve holds pressures of up to 18 MPa without noticeable dislocation, structural damage, or leakage. In contrast, following deswelling by raising the temperature above LCST the valve offers no appreciable flow resistance since its large, micrometer-size pores are open. Laser-triggered photobleaching of a fluorescent dye contained in the liquid phase enabled monitoring of flow through the device and determination of the times required to open and close the valve. The valves were characterized by very fast actuation times at 1-4 s depending on the type of device. No changes in performance were observed even after repeated open-close cycling of the valves.

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 55 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 8

ACCESSION NUMBER: 2003:199553 CAPLUS

DOCUMENT NUMBER: 138:313434

TITLE: Flow Control Valves for Analytical Microfluidic Chips without Mechanical Parts Based on Thermally Responsive Monolithic Polymers

AUTHOR(S): Yu, Cong; Mutlu, Senol; Selvaganapathy, Ponnambalam; Mastrangelo, Carlos H.; Svec, Frantisek; Frechet, Jean M. J.

CORPORATE SOURCE: Department of Chemistry, University of California, Berkeley, CA, 94720-1460, USA

SOURCE: Analytical Chemistry (2003), 75(8), 1958-1961  
 CODEN: ANCHAM; ISSN: 0003-2700  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Monolithic plugs of poly(N-isopropylacrylamide) cross-linked with 5% methylenebisacrylamide were prepared by photoinitiated polymerization within the channel of a microfluidic device. The volume change associated with the polymer phase transition at its lower critical solution temperature of 32° allows both the rapid swelling and the deswelling of the monoliths enabling the polymer to close or open the channel as it functions as a nonmech. valve. Thermoelec. elements capable of changing the temperature of the system between 17 and 57° were used to actuate the valve. Flow through the device was monitored by fluorescence measurements via the laser-triggered photobleaching of a dye contained in the liquid phase. Photobleaching occurs quickly once the flow is stopped, and the time required to open and close the valve was 3.5 and 5.0 s, resp. No changes in function were observed even after 120 open-close cycles. Although the 2-mm-long valve was prepared from a polymerization mixture consisting of only a 5% aqueous solution of monomers, it resists pressures of up to 1.38 MPa (200 psi) without observable structural damage.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 56 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2003(42):7068 COMPENDEX  
 TITLE: Synthesis and characterization of injectable poly(N-isopropylacrylamide-co-acrylic acid) hydrogels with proteolytically degradable cross-links.  
 AUTHOR: Kim, Soyeon (University of California at Berkeley Department of Bioengineering, Berkeley, CA 94720-1760, United States); Healy, Kevin E.  
 SOURCE: Biomacromolecules v 4 n 5 September/October 2003 2003.p 1214-1223  
 SOURCE: Biomacromolecules v 4 n 5 September/October 2003 2003.p 1214-1223  
 CODEN: BOMAF6 ISSN: 1525-7797  
 PUBLICATION YEAR: 2003  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Theoretical; Experimental  
 LANGUAGE: English

AN 2003(42):7068 COMPENDEX

AB Hydrogels composed of N-isopropylacrylamide (NIPAAm) and acrylic acid (AAc) were prepared by redox polymerization with peptide cross-linkers to create an artificial extracellular matrix (ECM) amenable for testing hypotheses regarding cell proliferation and migration in three dimensions. Peptide degradable cross-linkers were synthesized by the acrylation of the amine groups of glutamine and lysine residues within peptide sequences potentially cleavable by matrix metalloproteinases synthesized by mammalian cells (e.g., osteoblasts). With the peptide cross-linker, loosely cross-linked poly(N-isopropylacrylamide-co-acrylic acid) [P(NIPAAm-co-AAc)] hydrogels were prepared, and their phase transition behavior, lower critical solution temperature (LCST), water content, and enzymatic degradation properties were investigated. The peptide-cross-linked P(NIPAAm-co-AAc) hydrogels were pliable and fluidlike at room temperature and could be injected through a small-diameter aperture. The LCST of peptide-cross-linked hydrogel was influenced by the monomer ratio of NIPAAm/AAc but not by cross-linking density within the polymer network. A peptide-cross-linked hydrogel with a 97/3 molar ratio of

NIPAAm/AAc exhibited a LCST of [similar to] 34.5 deg C. Swelling was influenced by NIPAAm/AAc monomer ratio, cross-linking density, and swelling media; however, all hydrogels maintained more than 90% water even at 37 deg C. In enzymatic degradation studies, breakdown of the peptide-cross-linked P(NIPAAm-co-AAc) hydrogels was dependent on both the concentration of collagenase and the cross-linking density. These results suggest that peptide-cross-linked P(NIPAAm-co-AAc) hydrogels can be tailored to create environmentally-responsive artificial extracellular matrixes that are degraded by proteases. 65 Refs.

L7 ANSWER 57 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2004(4):4412 COMPENDEX

TITLE: Creating nanoporosity by selective extraction of porogens using supercritical carbon dioxide/cosolvent processes.

AUTHOR: Lahlouh, B. (Department of Physics Texas Tech University, Lubbock, TX 79409, United States); Rajagopalan, T.; Lubguban, J.A.; Biswas, N.; Gangopadhyay, S.; Sun, J.; Huang, D.; Simon, S.L.; Kim, H.C.; Volksen, W.; Miller, R.D.

MEETING TITLE: Materials, Technology and Reliability for Advanced Interconnects and Low-k Dielectrics - 2003.

MEETING LOCATION: San Francisco, CA, United States

MEETING DATE: 21 Apr 2003-25 Apr 2003

SOURCE: Materials Research Society Symposium - Proceedings v 766 2003.p 291-296

SOURCE: Materials Research Society Symposium - Proceedings v 766 2003.p 291-296

CODEN: MRSPDH ISSN: 0272-9172

PUBLICATION YEAR: 2003

MEETING NUMBER: 62117

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2004(4):4412 COMPENDEX

AB This work presents a novel approach using supercritical carbon dioxide (SCCO2) to selectively extract poly(propylene glycol) (PPG) porogen from a poly(methylsilsesquioxane) (PMSSQ) matrix, which results in the formation of nanopores. Nanoporous thin films were prepared by spin-casting a solution containing appropriate quantities of PPG porogen and PMSSQ dissolved in PM acetate. The as-spun films were thermally cured at temperatures well below the thermal degradation temperature of the organic polymer to form a cross-linked organic/inorganic polymer hybrid. By selectively removing the CO2 soluble PPG porogen, open and closed pore structures are possible depending upon the porogen load and its distribution in the matrix before extraction. In the present work, two different loadings of PPG namely 25 weight% and 55 weight% were used. Both static SCCO2 and pulsed SCCO2/cosolvent treatments were used for PPG extraction. The initial results indicate that the pulsed SCCO2/cosolvent treatment was more efficient. Fourier transform infrared spectroscopy (FTIR) and refractive index measurements further corroborate the successful extraction of the porogens at relatively low temperatures (<EQ 200 deg C). For the pure PMSSQ film, the k value is 3.1, whereas it is 1.46 and 2.27 for the open and closed pore compositions respectively after the static SCCO2 extraction and 430deg C subsequent annealing. The reduction in the k-value is attributed to the formation of nanopores. The pore structure was verified from transmission electron microscopy (TEM), and from small-angle x-ray scattering (SAXS) measurements, the pore size was determined to be 1-3 nm for these films. 19 Refs.

L7 ANSWER 58 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:616420 CAPLUS

DOCUMENT NUMBER: 137:159402  
 TITLE: Implantable catheters for drug delivery  
 INVENTOR(S): Thompson, David L.  
 PATENT ASSIGNEE(S): Medtronic, Inc., USA  
 SOURCE: U.S. Pat. Appl. Publ., 27 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002111601	A1	20020815	US 2001-781750	20010212
PRIORITY APPLN. INFO.:			US 2001-781750	20010212

AB An Implantable Medical Device (IMD) for controllably releasing a biol.-active agent such as a drug to a body is disclosed. The IMD includes a catheter having one or more ports, each of which is individually controlled by a resp. pair of conductive members located in proximity to the port. According to the invention, a voltage p.d. generated across a resp. pair of conductive members is used to control drug delivery via the resp. port. In one embodiment of the current invention, each port includes a cap member formed of a conductive material. This cap member is elec. coupled to one of the conductive members associated with the port to form an anode. The second one of the conductive members is located in proximity to the port and serves as a cathode. When the cap member is exposed to a conductive fluid such as blood, a p.d. generated between the conductors causes current to flow from the anode to the catheter, dissolving the cap so that a biol.-active agent is released to the body. In another embodiment of the invention, each port is in proximity to a reservoir or other expandable member containing a cross-linked polymer gel of the type that expands when placed within an elec. field. Creation of an elec. field between resp. conductive members across the cross-linked polymer gel causes the gel to expand. In one embodiment, this expansion causes the expandable member to assume a state that blocks the exit of the drug from the resp. port. Alternatively, the expansion may be utilized to assert a force on a bolus of the drug so that it is delivered via the resp. port. Drug delivery is controlled by a control circuit that selectively activates one or more of the predetd. ports.

L7 ANSWER 59 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:391396 CAPLUS  
 DOCUMENT NUMBER: 136:388270  
 TITLE: An oil in water fracturing fluid emulsion, method of preparation and use for fracturing a subterranean formation  
 INVENTOR(S): Kakadjian, Sarkis; Rauseo, Oscar; Marquez, Rosalinda; Blanco, Jose  
 PATENT ASSIGNEE(S): Intevep SA, Venez.  
 SOURCE: Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1207267	A1	20020522	EP 2001-127598	20011119
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				

IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
 BR 2001005241 A 20020806 BR 2001-5241 20011119  
 PRIORITY APPLN. INFO.: US 2000-717330 A 20001120  
 AB An oil in water fracturing fluid emulsion includes a dispersed  
 oil phase; and a continuous water phase in the form of a solution of  
 cross-linkable polymer in water. A method for  
 forming the emulsion, as well as a fracturing method using the  
 emulsion, are also disclosed.  
 REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 60 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:87185 CAPLUS  
 DOCUMENT NUMBER: 136:106330  
 TITLE: Permeable cement sand screen compositions containing a  
 cross-linked gel with a breaker for well  
 bores  
 INVENTOR(S): Nguyen, Philip D.; Barton, Johnny A.; Crook, Ronald  
 J.; Brown, David L.; Chatterji, Jiten; Cromwell, Roger  
 S.; Reddy, Baireddy R.; King, Bobby J.  
 PATENT ASSIGNEE(S): Halliburton Energy Services, Inc., USA  
 SOURCE: Eur. Pat. Appl., 7 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1176126	A2	20020130	EP 2001-306370	20010725
EP 1176126	A3	20030604		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2002035951	A1	20020328	US 2000-736513	20001213
US 6364945	B2	20020402		
AU 777258	B2	20041007	AU 2001-55945	20010725
US 2002108535	A1	20020815	US 2002-80237	20020219
US 6592660	B2	20030715		
PRIORITY APPLN. INFO.:		US 2000-627264	A	20000728
		US 2000-698315	A	20001027

AB Permeable cement sand screens to prevent sand from flowing into the  
 well bores with extracted hydrocarbon fluids are described.  
 The permeable cement sand screen compns. consist of hydraulic cement, a  
 particulate cross-linked gel containing an internal breaker (such as  
 hemicellulase, encapsulated or ethanamine activated ammonium persulfate or  
 sodium chlorite) which after time causes the gel to break into a liquid,  
 enough water to form a slurry and optionally a foaming and  
 foam-stabilizing surfactant. The particulates in the cross-linked gel may  
 be calcium carbonate or gilsonite and the cross-linked  
 gel is based on a hydratable polymer of hydroxyalkylcellulose  
 grafted with vinylphosphonic acid. The compns. are placed in the  
 well bore to set, allowing the gel to break to form vugs and  
 channels in the set cement and then contacting the set cement with  
 an acid (such as HCl) and an hydrocarbon (such as xylene) to dissolve  
 portions of the vugs and channels where the set cement is  
 permeated.

L7 ANSWER 61 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN  
 ACCESSION NUMBER: 2002(50):2841 COMPENDEX  
 TITLE: Surface modification of porous vesicles via  
 hydrolysis.  
 AUTHOR: Yang, Won Young (Division of Environ. and Chem. Eng.

Res. Inst. of Industrial Technology Chonbuk National University, Chonju 561-756, South Korea); Lee, Youn-Sik

SOURCE: Langmuir v 18 n 16 Aug 6 2002 2002.p 6071-6074  
SOURCE: Langmuir v 18 n 16 Aug 6 2002 2002.p 6071-6074  
CODEN: LANGD5 ISSN: 0743-7463  
PUBLICATION YEAR: 2002  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Theoretical; Experimental  
LANGUAGE: English

AN 2002(50):2841 COMPENDEX

AB The surfaces of skeletonized vesicles (or vesicles with holes) are hydrophilic. If the hydrophilic surfaces are chemically modified to have a reasonable compatibility with organic solvents, the application of vesicular colloids can be expanded. In this study, 1,2-dipalmitoyl-sn-glycero-3-phosphocholine (DPPC) and N,N-bis-[10-(4-vinylbenzyloxy)decanoylaminoethyl]-N,N-dimethylammonium chloride (BDAC) were employed as a nonpolymerizable lipid and polymerizable surfactant, respectively. Divinylbenzene (DVB) was used as a cross-linking agent in the polymerization of the vesicles. Multilamellar vesicles composed of BDAC and DPPC with embedded DVB in a 3:2:3 molar ratio underwent efficient radical polymerization. DPPC was removed from the cross-linked vesicles using Triton X-100 (skeletonization). The headgroup of BDAC was removed by hydrolysis in an acidic condition. The surface of the polymerized vesicles looked very smooth, but the skeletonized vesicles looked pretty rough and showed only small interstices or holes, the DSC experiment showed that DPPC domains were widely distributed in size after polymerization. The hydrolyzed vesicle surface looked wrinkled, probably due to the enhanced fluidity of the alkyl chains. The hydrolyzed vesicles were precipitated or aggregated in many individual organic solvents but were well dispersed in a 1.0 M NaOH water/methanol (1/1) solution. 11  
Refs.

L7 ANSWER 62 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:982926 CAPLUS  
DOCUMENT NUMBER: 138:246716  
TITLE: Plasma deposition of ultrathin polymer films on carbon nanotubes  
AUTHOR(S): Shi, Donglu; Lian, Jie; He, Peng; Wang, L. M.; van Ooij, Wim J.; Schulz, Mark; Liu, Yijun; Mast, David B.  
CORPORATE SOURCE: Department of Materials Science and Engineering, University of Cincinnati, Cincinnati, OH, 45221, USA  
SOURCE: Applied Physics Letters (2002), 81(27), 5216-5218  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Ultrathin films of pyrrole were deposited on the surfaces of carbon nanotubes using a plasma polymerization treatment. High-resolution electron transmission microscopy images revealed that an extremely thin film of the polymer layer (2-7 nm) was uniformly deposited on the outer and inner surfaces of the nanotubes. The nanotubes of all sizes exhibited equally uniform ultrathin films, indicating well-dispersed nanotubes in the fluidized bed reactor during the plasma treatment. In particular, the inner wall of the nanotube was also coated with a uniform ultrathin film of only approx. 1-3 nm. Time-of-flight secondary ion mass spectroscopy expts. confirmed the highly branched and cross-linked polymer thin films on the carbon nanotubes. The plasma deposition mechanism is discussed in this letter.

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



L7 ANSWER 63 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 9

ACCESSION NUMBER: 2002:145055 CAPLUS  
DOCUMENT NUMBER: 136:326475  
TITLE: Cross-linked Polymersome  
Membranes: Vesicles with Broadly Adjustable Properties  
AUTHOR(S): Discher, Bohdana M.; Bermudez, Harry; Hammer, Daniel  
A.; Discher, Dennis E.; Won, You-Yeon; Bates, Frank S.  
CORPORATE SOURCE: School of Engineering and Applied Science, University  
of Pennsylvania, Philadelphia, PA, 19104, USA  
SOURCE: Journal of Physical Chemistry B (2002), 106(11),  
2848-2854  
CODEN: JPCBKF; ISSN: 1089-5647  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Massively cross-linked and property-tunable membranes have been fabricated by free radical polymerization of self-assembled, block copolymer vesicles - polymersomes. Similar efforts with cross-linkable lipids would appear frustrated in the past due to at least two factors: limited reactivity and membrane fragility under local stresses of nano-confined crosslinking. We describe here a diblock copolymer of poly(ethylene oxide)-polybutadiene that has a hydrophilic weight fraction like that of lipids and forms robust fluid phase membranes in water. The polymersomes sustain free radical polymerization of the hydrophobic butadiene, thereby generating a semipermeable nano-shell. Cross-linked giant vesicles prove stable in chloroform and can also be dehydrated and re-hydrated without rendering the .apprx.9 nm thick membrane core; the results imply defect-free membranes many microns-squared in area. Surface elastic moduli as well as sustainable wall stresses up to 103 Atm, orders of magnitude greater than any natural lipid membrane, appear consistent with strong tethering between close-packed neighbors. The enormous stability of the giant vesicles can be tuned down for application: blending in the hydrogenated analog poly(ethylene oxide)-polyethylethylene modulates the effective elastic consts. as well as the rupture strength by orders of magnitude. The results appear consistent with rigidity percolation through a finite-layer stack of two-dimensional lattices. Moreover, below the percolation limit, a regime of hyper-instability emerges, reflecting perhaps nanoscale demixing and suggestive of the limitations encountered with low reactivity lipids. The results provide general insights into covalent crosslinking within self-assembled nanostructures.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 64 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2004(6):5571 COMPENDEX  
TITLE: Propagation of Cross-linkers Used in In-Situ Gelled  
Acids in Carbonate Reservoirs.  
AUTHOR: Nasr-El-Din, H.A.; Taylor, K.C.; Al-Hajji, H.H.  
MEETING TITLE: SPE/DOE Thirteenth Symposium on Improved Oil Recovery.  
MEETING LOCATION: Tulsa, OK, United States  
MEETING DATE: 13 Apr 2002-17 Apr 2002  
SOURCE: Proceedings - SPE Symposium on Improved Oil Recovery  
2002.p 1152-1171  
SOURCE: Proceedings - SPE Symposium on Improved Oil Recovery  
2002.p 1152-1171  
CODEN: SSIPD6  
PUBLICATION YEAR: 2002  
MEETING NUMBER: 62155  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical; Experimental  
LANGUAGE: English  
AN 2004(6):5571 COMPENDEX

AB In-situ gelled acids are used in well stimulation to improve sweep efficiency during acid placement. These acids comprise a polymer, a cross-linker and a breaker in addition to chemicals used with regular acids. The gelation reaction in these systems occurs over a narrow range of pH (2-4). The gel forms once the acid reacts with the carbonate formation and the pH rises to a value above 2. The gel breaks once the pH rises above a value greater than 4. Propagation of the cross-linker plays a key role in the success of these acids. However, in a recent paper by Lynn and Nasr-El-Din,<sup>1</sup> there was evidence of precipitation of the cross-linker in some systems. The cross-linker is typically a multi-valent cation (iron(III) or zirconium(IV)), which may precipitate at high pH values or react with hydrogen sulfide (in the case of sour wells) to precipitate damaging material. Coreflood experiments were conducted at 100deg F in a linear mode to determine the rate of propagation of various cross-linkers in reservoir cores (mainly calcite). This temperature represents bottom hole temperature of seawater injectors in a carbonate reservoir in Saudi Arabia. Propagation of the cross-linker in carbonate cores was examined by measuring the concentration of the cross-linker in the core effluent and comparing it with the chloride ion concentration (used as a tracer). The profile of the tracer was used to determine dispersion of the acid in the core, whereas the area between the tracer and cross-linker profiles was used to determine the amount of cross-linker precipitated or retained in the core. The effects of acid concentration, slug volume, injection rate, cross-linker type, and polymer loading on the rate of propagation of the cross-linker were examined in detail. The following conclusions were made. 1. Viscous fingering effects that occur during pumping low-viscosity post-flush fluids affect the propagation of the cross-linker in reservoir cores. 2. The rate of propagation of the cross-linkers depends on the type of cross-linker used (iron, zirconium, etc.), and 3. Results of this study will help production engineers to design acid treatments with minimum damage due to precipitation/retention of the cross-linker. 26 Refs.

L7 ANSWER 65 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN  
ACCESSION NUMBER: 2003(1):11464 COMPENDEX  
TITLE: Microwave cure of conductive adhesives for flip-chip & microsystems applications.  
AUTHOR: Glinski, G.P. (Center for NMPA University of Greenwich, Greenwich, London, SE10 9LS, United Kingdom); Bailey, C.  
MEETING TITLE: 8th Intersociety Conference on Thermal and Thermomechanical phenomena in Electronic Systems.  
MEETING ORGANIZER: IEEE  
MEETING LOCATION: San Diego, CA, United States  
MEETING DATE: 30 May 2002-01 Jun 2002  
SOURCE: Thermomechanical Phenomena in Electronic Systems -Proceedings of the Intersociety Conference 2002.p 848-853, (IEEE cat n 02ch37258)  
SOURCE: Thermomechanical Phenomena in Electronic Systems -Proceedings of the Intersociety Conference 2002.p 848-853, (IEEE cat n 02ch37258)  
CODEN: PITEFT  
PUBLICATION YEAR: 2002  
MEETING NUMBER: 60571  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Application; Theoretical; Experimental  
LANGUAGE: English

AN 2003(1):11464 COMPENDEX

AB The curing of conductive adhesives and underfills can save considerable time and offer cost benefits for the microsystem and electronics packaging industry. In contrast to conventional ovens, curing by microwave energy generates heat internally within each individual component of an assembly.

The rate which heat is generated is different for each of the component and depends on the material properties as well as the oven power and frequency. This leads to a very complex and transient thermal state, which is extremely difficult to measure experimentally. Conductive adhesives need to be raised to minimum temperature to initiate the cross-linking of the resin polymers, whilst some advanced packaging materials currently under investigation impose a maximum temperature constrain to avoid damage. Thermal imagery equipment integrated with the microwave oven can offer some information on the thermal state but such data is based on the surface temperatures. This paper describes computational models that can simulate the internal temperatures within each component of an assembly including the critical region between the chit and substrate. The results obtained demonstrate that due to the small mass of adhesive used in the joints, the temperature., reached are highly dependent on the material properties of the adjacent chip and substrate. 10 Refs.

L7 ANSWER 66 OF 99 INSPEC (C) 2007 IET on STN  
ACCESSION NUMBER: 2002:7425647 INSPEC  
DOCUMENT NUMBER: B2002-12-0170J-089  
TITLE: Microwave cure of conductive adhesives for flip-chip & microsystems applications  
AUTHOR: Glinski, G.P.; Bailey, C. (Centre for Numerical Modelling & Process Anal., Greenwich Univ., UK)  
SOURCE: ITherm 2002. Eighth Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (Cat. No.02CH37258), 2002, p. 848-53 of xxviii+1115 pp., 10 refs.  
Editor(s): Amon, C.H.; Ramakrishna, K.; Sammakia, B.G.; Subbarayan, G.; Sathe, S.B.; Joshi, Y.K.  
ISBN: 0 7803 7152 6  
Price: 0-7803-7152-6/02/\$10.00  
Published by: IEEE, Piscataway, NJ, USA  
Conference: ITherm 2002. Eighth Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, San Diego, CA, USA, 30 May-1 June 2002  
Sponsor(s): Components, Packaging, & Manuf. Technol. Soc. IEEE (CPMT/IEEE); K-16 Committee on Electron. Cooling, Heat Transfer Div. ASME; Electron. & Photonics & Packaging Div. (EPPD), ASME; Int. Microelectron. & Packaging Soc. (IMAPS)  
DOCUMENT TYPE: Conference; Conference Article  
TREATMENT CODE: Theoretical  
COUNTRY: United States  
LANGUAGE: English

AN 2002:7425647 INSPEC DN B2002-12-0170J-089

AB The curing of conductive adhesives and underfills can save considerable time and offer cost benefits for the microsystems and electronics packaging industry. In contrast to conventional ovens, curing by microwave energy generates heat internally within each individual component of an assembly. The rate at which heat is generated is different for each of the components and depends on the material properties as well as the oven power and frequency. This leads to a very complex and transient thermal state, which is extremely difficult to measure experimentally. Conductive adhesives need to be raised to a minimum temperature to initiate the cross-linking of the resin polymers, whilst some advanced packaging materials currently under investigation impose a maximum temperature constraint to avoid damage. Thermal imagery equipment integrated with the microwave oven can offer some information on the thermal state but such data is based on the surface temperatures. This paper describes computational models that can simulate the internal

temperatures within each component of an assembly including the critical region between the chip and substrate. The results obtained demonstrate that due to the small mass of adhesive used in the joints, the temperatures reached are highly dependent on the material properties of the adjacent chip and substrate

L7 ANSWER 67 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2004(10):529 COMPENDEX  
TITLE: Making a Case for Rethinking Lost Circulation  
Treatments in Induced Fractures.  
AUTHOR: Ivan, Catalin D.; Bruton, James R.; Thiercelin, Marc;  
Bedel, Jean-Philippe  
MEETING TITLE: Proceedings of the 2002 SPE Annual Technical  
Conference and Exhibition.  
MEETING ORGANIZER: SPE  
MEETING LOCATION: San Antonio, TX, United States  
MEETING DATE: 29 Sep 2002-02 Oct 2002  
SOURCE: Proceedings - SPE Annual Technical Conference and  
Exhibition 2002.p 201-208  
SOURCE: Proceedings - SPE Annual Technical Conference and  
Exhibition 2002.p 201-208  
CODEN: PSAEE3  
PUBLICATION YEAR: 2002  
MEETING NUMBER: 61677  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2004(10):529 COMPENDEX

AB The challenges of preventing and controlling fluid losses when drilling formations prone to induced fractures have been well documented. The narrow operating window between pore pressure and fracture gradient often results in massive fluid losses when drilling, running casing, and cementing. Many products and techniques have been used in attempts to restore circulation while drilling induced fractures. These include fibrous, flaky and granular materials, as well as techniques such as gunk and reverse gunk squeezes, high fluid-loss squeezes and cement squeezes. Even though these techniques sometimes restore partial or full circulation, more often than not they are temporary solutions as losses often reoccur as drilling proceeds. It was thought that the particulate materials and the high compressive strength lost-circulation pills first were failing to reach the tip of the induced fracture and nevertheless were acting as a proppant, thus not allowing the fractures to heal. The low fracture re-opening pressures then allow for continued losses. More recently, a new generation of chemically activated cross-linked pills has been developed and applied to challenging induced fractures environment to cure and limit losses. This paper substantiates the observed effectiveness of soft visco-elasto-plastic lost circulation pills in solving lost circulation problems in induced fractures as well as the application of the cross-linked polymer pills. The work presented in this paper first consisted of determining the mechanical properties of these pills under downhole conditions by using a vane rheometer. The theory of hydraulic fracture mechanics was then applied to model the behavior of these visco-elasto-plastic soft pills and demonstrate the superiority of these pills in solving lost circulation problems. Results show that once the soft cross-linked polymer pills have been squeezed into the induced fracture, the fracture gradient has been increased. This behavior, enhanced by the gel elasticity, helps the fractures to heal and the losses to be stopped. In addition to healing fractures, the soft cross-linked polymer pills also provide a mechanism for bridging micro-fractures and thus preventing losses into the formation. 8 Refs.

L7 ANSWER 68 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 10  
ACCESSION NUMBER: 2003(9):250 COMPENDEX  
TITLE: Preparation of LC monodomain structure in polymer systems.  
AUTHOR: Ujiie, Seiji (Department of Material Science Interdisciplinary Fac. Sci. and Eng. Shimane University, Matsue 690-8504, Japan); Yano, Yumi; Mori, Akira; Iimura, Kazuyoshi  
MEETING TITLE: Liquid Crystals VI.  
MEETING ORGANIZER: SPIE  
MEETING LOCATION: Seattle, WA, United States  
MEETING DATE: 08 Jul 2002-09 Jul 2002  
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 4799 2002.p 148-159  
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 4799 2002.p 148-159  
CODEN: PSISDG ISSN: 0277-786X  
PUBLICATION YEAR: 2002  
MEETING NUMBER: 60710  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Experimental  
LANGUAGE: English

AN 2003(9):250 COMPENDEX

AB The thermal polymerization of aziridine monomers without a mesophase was performed in rubbing and non-treated sandwich cells. Cross-linked polymers, having homogeneous and homeotropic structures, were prepared. The thermal polymerization process was examined by X-ray diffraction measurements and polarizing microscopy. The cross-linked polymers exhibited a smectic A layered structure. In the rubbing sandwich cell, an aziridine monomer with an ethanol terminal group gave a cross-linked polymer having a homogeneous alignment. The homeotropic structure was obtained by thermal polymerization of an aziridine monomer with a nitro terminal group in a non-treated sandwich cell. The homeotropic structure was also formed on the surface of a glass plate and an aluminum thin film. A uniaxial-optical property of the homeotropic structure was characterized by conoscopic observation. The X-ray diffraction measurements showed the formation of the smectic A domain within an isotropic fluid by thermal polymerization at 100deg C as well as optical texture observations. The X-ray diffraction pattern of the homeotropic structure was composed of first, second, and third inner reflections and a wide-angle halo, corresponding to the smectic A fluid phase. 19 Refs.

L7 ANSWER 69 OF 99 INSPEC (C) 2007 IET on STN  
ACCESSION NUMBER: 2002:7407838 INSPEC  
DOCUMENT NUMBER: B2002-11-2550G-104  
TITLE: Lithographic characteristics and thermal processing of photosensitive sacrificial materials  
AUTHOR: Xiaoqun Wu; (Sch. of Chem. Eng., Georgia Inst. of Technol., Atlanta, GA, USA), Reed, H.A.; Rhodes, L.F.; Elce, Ed; Ravikiran, R.; Shick, R.A.; Henderson, C.L.; Allen, S.A.B.; Kohl, P.A.  
SOURCE: Journal of the Electrochemical Society (Oct. 2002), vol.149, no.10, p. G555-61, 14 refs.  
CODEN: JESOAN, ISSN: 0013-4651  
SICI: 0013-4651(200210)149:10L.g555:LCTP;1-N  
Price: 0013-4651/2002/149(10)/555/7/\$7.00  
Doc.No.: S0013-4651(02)01910-9  
Published by: Electrochem. Soc, USA  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
COUNTRY: United States

LANGUAGE: English

AN 2002:7407838 INSPEC DN B2002-11-2550G-104

AB Previously, a novel method for fabricating microfluidic and microelectromechanical devices with buried microchannel structures using thermally sacrificial polymers was reported. These previous methods required separate lithographic and etching sequences to pattern the sacrificial polymer. In this work, a more advanced approach in which the sacrificial material is radiation sensitive and can be patterned directly using standard lithographic techniques is explored. The lithographic performance of a new class of photosensitive polynorbornene (PNB) sacrificial materials has been characterized. The effect of soft bake and postexposure bake (PEB) on the cross-linking of photodefinable PNB has also been investigated. It was found that significant cross-linking of PNB occurs after exposure during the subsequent postexposure bake. However, this phenomenon is strongly dependent on the soft bake conditions used in preparing the sample, presumably due to varying levels of residual solvent content. This may be due to the high mass transport of the reactive species because of evaporation of residual solvent and shrinking of polymer matrix during the PEB process. No noticeable influence of residual solvent on cross-linking has been found during exposure

L7 ANSWER 70 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:331174 CAPLUS

DOCUMENT NUMBER: 134:342365

TITLE: High temperature hydraulic fracturing fluid

INVENTOR(S): Mitchell, Thomas O.; Parris, Michael D.

PATENT ASSIGNEE(S): Schlumberger Technology Corporation, USA

SOURCE: U.S., 12 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
US 6227295	B1	20010508	US 1999-415400	19991008
PRIORITY APPLN. INFO.:			US 1999-415400	19991008

OTHER SOURCE(S): MARPAT 134:342365

AB A fluid that is useful in stimulation operations, and in particular, in hydraulic fracturing treatments, comprises a carrier fluid; a solvatable, crosslinkable polymer; a crosslinking agent that does not cause substantial crosslinking of the polymer at temps. .ltorsim.105°F and a pH of .apprx.10 or greater; and an organic amine stabilizing agent that has a 1st pKa or a pH in H2O of at least .apprx.9.5. One group of the amines has the formula H2N-(R1NH)n-H where R1 is C1-4 alkyl and n is from 1-6, preferably tetraethylene pentamine. In 1 embodiment, the crosslinking agent is an organic zirconate, such as bis(hydroxyethyl)glycine zirconate. The organic zirconate is effective to cross-link the polymer when the composition is at a temperature of at least .apprx.105°F and a pH of .apprx.10 or higher, preferably a pH in the range of .apprx.10.5-12.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 71 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:200944 CAPLUS

TITLE: Synthesis of well-defined porous column packings using supercritical CO2 as the porogenic solvent

AUTHOR(S): Cooper, Andrew I.; Hebb, Andrew K.

CORPORATE SOURCE: Department of Chemistry, University of Liverpool,

SOURCE: Liverpool L69 7ZD, UK  
Abstracts of Papers, 221st ACS National Meeting, San Diego, CA, United States, April 1-5, 2001 (2001)  
IEC-275  
CODEN: 69FZD4  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal; Meeting Abstract  
LANGUAGE: English  
AB The synthesis of continuous macroporous polymer monoliths for use as separation media is currently a subject of great interest. These materials could have certain advantages over more traditional macroporous polymer bead packings, mainly because of the absence of interstitial voids in the packed state. Recently, we have developed methods for the synthesis of highly cross-linked polymer monoliths using supercrit. carbon dioxide as the porogenic solvent (see e.g., A.I. Cooper and A.B. Holmes, Adv. Mater., 1999, 11, 2170). In this paper we describe how it is possible to achieve fine control over average pore sizes and pore size distributions, both by varying the d. of the supercrit. solvent and also via reverse micellar imprinting. We envisage that well-defined materials of this type might find a number of uses in separation science, particularly in supercrit. fluid chromatog.

L7 ANSWER 72 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:352689 CAPLUS  
DOCUMENT NUMBER: 135:65216  
TITLE: Research in particle coating and agglomeration at West Virginia University  
AUTHOR(S): Turton, R.; Bhatia, A.; Hakim, H.; Subramanian, G.; Norman, L.  
CORPORATE SOURCE: Department of Chemical Engineering, CEMR, West Virginia University, Morgantown, WV, 26506-6102, USA  
SOURCE: Powder Technology (2001), 117(1-2), 139-148  
CODEN: POTEBX; ISSN: 0032-5910  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB A review with 19 refs. Over the last three years, work in the Particle Coating Laboratory at West Virginia University has focused on three main areas. The first area concerns the reversible agglomeration of cement to produce a granular product (2-10 mm) that can be transported easily and can be broken down and hydrated to form a cement slurry with properties identical to virgin cement. This agglomeration process uses a binding agent consisting of calcium chloride (CC) and tartaric acid (TA) dissolved in methanol that can be considered an inert solvent. By adjusting the proportions of the cement set accelerating agent (CC) and the retarding agent (TA) a granular cement product can be formed that gives a cement slurry with essentially the same characteristics as that obtained from virgin cement. The resulting concrete also has the same compressive strength, obtained in a standard 3-day test, as virgin cement. The second research area concerns the formation of encapsulated brittle particles of ammonium persulfate (AP) that are used as viscosity breaking agents for fracturing fluids. To obtain a coat that undergoes brittle fracture when subjected to a compressive load, a coating of a cross-linked acrylate polymer containing up to 80 weight% of fine (<15  $\mu$ m) silica was used. By varying the coating level of acrylate, the release of the ammonium persulfate using a standard leach test can be reduced to acceptably low levels (<3%). By changing the fraction of silica in the coat, the release of the ammonium persulfate (AP) when the particles are subjected to a known compressive stress (13.8 MPa) can be increased to .apprx.70%. The particles formed by this process consist of agglomerates of 10-20 individually coated particles. When subjected to an applied load, these agglomerates fracture and the coating on the

individual particles is sheared away thus releasing AP. These particles can be used as viscosity breaking agents in drilling well fracturing operations. The third project consists of the video imaging of particle movement in a semicircular fluidized bed typically used in coating operations. The particles of interest are 8-mm-diameter tablets. The technique used to capture particle velocity data utilizes two CCD cameras that are synchronized to capture images that are 1-5 ms apart. The mapping of particle velocity within the spray region in the draft tube insert under a variety of conditions is currently underway. Preliminary data is presented and discussed.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 73 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2004(6):4228 COMPENDEX

TITLE: Treatment of Super-K Zones Using Gelling Polymers.

AUTHOR: Alqam, M.H.; Nasr-El-Din, H.A.; Lynn, J.D.

MEETING TITLE: SPE International Symposium on Oilfield Chemistry.

MEETING LOCATION: Houston, TX, United States

MEETING DATE: 13 Feb 2001-16 Feb 2001

SOURCE: Proceedings - SPE International Symposium on Oilfield Chemistry 2001.p 119-131

SOURCE: Proceedings - SPE International Symposium on Oilfield Chemistry 2001.p 119-131

CODEN: 85REAO

PUBLICATION YEAR: 2001

MEETING NUMBER: 62134

DOCUMENT TYPE: Conference Article

TREATMENT CODE: Experimental

LANGUAGE: English

AN 2004(6):4228 COMPENDEX

AB An experimental investigation was undertaken to modify the permeability profile of high permeability fluid zones (producing and injection) using gelling (cross linking) polymers. The first phase of this study Included characterization of "super-K" zones. Computerized Tomography (CT), Scanning Electron Microscopy (SEM), X-ray Diffraction (XRD) and an Apparatus for Pore Examination (APEX) system were used to determine the mineralogy and pore geometry of carbonate core plugs obtained from the matrix and super-K zones. In the second phase of the study, various gelling solutions were injected into reservoir core samples to evaluate the ability of the gel to resist extrusion and determine the robustness of the treatment chemical under downhole conditions. Core plugs used In this study were obtained from an oil producer in a carbonate reservoir in Saudi Arabia. The results of the first phase indicated that the super-K streaks have a tortuous path. There are significant differences between the lithology and pore size distribution of the super-K zones and the normal matrix. In addition, there is convincing evidence that the super-K intervals may be fractured as well diagenetically induced. The use of thin section petrology has highlighted potential problems in using the gel in formations that are vugular or have large diameter natural fractures. The data has demonstrated that the gel will not fully fill pore voids greater than 400 microns, and would not invade pores smaller than 70 microns. Coreflood tests indicated that the gelling solution could be injected into either the matrix super-K or the fractured super-K. Reservoir condition aging improved the stability of the gels that were placed In matrix cores, but gave in less promising results in fractured intervals. 27 Refs.

L7 ANSWER 74 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:605357 CAPLUS

DOCUMENT NUMBER: 138:58436

TITLE: Treatment of super-K zones using gelling polymers

AUTHOR(S): Alqam, M. H.; Nasr-El-Din, H. A.; Lynn, J. D.



CORPORATE SOURCE: SPE, USA  
SOURCE: SPE International Symposium on Oilfield Chemistry,  
Conference Proceedings, Houston, TX, United States,  
Feb. 13-16, 2001 (2001), 114-126. Society of  
Petroleum Engineers: Richardson, Tex.  
CODEN: 69CZJT  
DOCUMENT TYPE: Conference; (computer optical disk)  
LANGUAGE: English

AB An exptl. investigation was undertaken to modify the permeability profile of high permeability fluid zones (producing and injection) using gelling (cross linking) polymers. The first phase of this study included characterization of "super-K" zones. Computerized Tomog. (CT), SEM, X-ray Diffraction (XRD) and an Apparatus for Pore Examination (APEX) system were used to determine the mineralogy and pore geometry of carbonate core plugs obtained from the matrix and super-K zones. In the second phase of the study, various gelling solns. were injected into reservoir core samples to evaluate the ability of the gel to resist extrusion and determine the robustness of the treatment chemical under downhole conditions. Core plugs used in this study were obtained from an oil producer in a carbonate reservoir in Saudi Arabia. The results of the first phase indicated that the super-K streaks have a tortuous path. There are significant differences between the lithol. and pore size distribution of the super-K zones and the normal matrix. In addition, there is convincing evidence that the super-K intervals may be fractured as well diagenetically induced. The use of thin section petrol. has highlighted potential problems in using the gel in formations that are vugular or have large diameter natural fractures. The data has demonstrated that the gel will not fully fill pore voids greater than 400  $\mu$ , and would not invade pores smaller than 70  $\mu$ . Coreflood tests indicated that the gelling solution could be injected into either the matrix super-K or the fractured super-K. Reservoir condition aging improved the stability of the gels that were placed in matrix cores, but gave in less promising results in fractured intervals.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 75 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:736247 CAPLUS

DOCUMENT NUMBER: 133:283929

TITLE: Use of oil-based gel-breaker/inhibitor compounds with polymer gels in well treatments

INVENTOR(S): Newhouse, Daniel P.; Lai, Quintin J.

PATENT ASSIGNEE(S): Atlantic Richfield Company, USA

SOURCE: U.S., 9 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 6133204	A	20001017	US 1999-246975	19990209
PRIORITY APPLN. INFO.:			US 1999-246975	19990209

AB A gel-breaking/gel-inhibiting composition containing at least one carboxylic acid

or salt thereof is dispersed in a hydrophobic carrier fluid to break down a cross-linked polymer gel or inhibit the gelation of a polymer gel used in plugging in permeable subterranean formations containing oil-bearing zones and water-bearing zones. The composition may be used to selectively restore permeability to oil-bearing zones in formations containing a cross-linked polymer gel or to inhibit gelation in an

oil-bearing zone by injection into the oil-bearing zone prior to or after treatment of the formation containing the oil-bearing zone with an aqueous polymer solution

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 76 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:777075 CAPLUS

DOCUMENT NUMBER: 135:291038

TITLE: Method for exploitation of nonuniform petroleum reservoirs

INVENTOR(S): Aleev, F. I.; Andreev, V. V.; Ivanov, S. V.; Postoenko, P. I.

PATENT ASSIGNEE(S): Nauchno-Proizvodstvennoe Upravlenie Otkrytogo Aktsionernogo Obshchestva "Orenburgneft", Russia

SOURCE: Russ., No pp. given

CODEN: RUXXE7

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RU 2149986	C1	20000527	RU 1998-116384	19980831
PRIORITY APPLN. INFO.:			RU 1998-116384	19980831

AB The method consists of withdrawing formation fluid through producing wells and injecting displacement agent through injection wells. Bottom-hole formation zones of producing and injection wells are periodically treated with cross-linked polymers. First, bottom-hole formation zones of all injection wells are treated. After reduction of water encroachment of neighboring producing wells by 5-10%, bottom-hole formation zones of these wells are treated with cross-linked polymers. Then periodic shutdown and renewal of operation of injection wells are accomplished with half-cycle calculated by piezocond. of formation and distance between wells. This provides higher efficiency due to increased sweep of formation and operation of low-permeable interlayers.

L7 ANSWER 77 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 2001(7):5397 COMPENDEX

TITLE: Synthesis of well-defined macroporous polymer monoliths by sol-gel polymerization in supercritical CO<sub>2</sub>.

AUTHOR: Cooper, Andrew I. (Univ of Cambridge, Cambridge, UK); Wood, Colin D.; Holmes, Andrew B.

SOURCE: Industrial and Engineering Chemistry Research v 39 n 12 Dec 2000. p 4741-4744, ACS, Washington, DC, USA

SOURCE: Industrial and Engineering Chemistry Research v 39 n 12 Dec 2000. p 4741-4744, ACS, Washington, DC, USA  
CODEN: IECRED ISSN: 0888-5885

PUBLICATION YEAR: 2000

DOCUMENT TYPE: Journal

TREATMENT CODE: Theoretical; Experimental

LANGUAGE: English

AN 2001(7):5397 COMPENDEX

AB The synthesis of continuous macroporous polymers (i.e., 'polymer monoliths') is currently a subject of great interest for a variety of applications. These materials may have certain advantages over more traditional macroporous polymer beads, mainly because of the absence of interstitial voids in the 'packed' state. Typically, a mold is filled with

a polymerization mixture containing a cross-linking monomer, functional comonomers, initiator, and a porogenic diluent. This mixture is then polymerized to form a continuous porous monolith that conforms to the shape of the mold. One drawback of the method is that large volumes of organic solvents are required (typically approximately 1:1 solvent to monomer), and these solvents can be hard to remove from the polymer matrix at the end of the reaction. Also, the pore structure of the polymer can be remarkably sensitive to very small changes in the composition of the porogenic solvent mixture. Recently, we have developed methods for the synthesis of highly cross-linked polymer monoliths using supercritical carbon dioxide as the porogenic solvent. In this paper, we describe how it is possible to achieve fine control over average pore sizes and pore size distributions, both by variations in the density of the supercritical solvent and also via reverse micellar imprinting. (Author abstract) 25 Refs.

L7 ANSWER 78 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 11  
ACCESSION NUMBER: 2000(41):614 COMPENDEX  
TITLE: UV-LIGA process for high aspect ratio structure using stress barrier and C-shaped etch hole.  
AUTHOR: Chang, Hyun-Kee (Seoul Natl Univ, Seoul, South Korea); Kim, Yong-Kweon  
SOURCE: Sensors and Actuators, A: Physical v 84 n 3 Sep 2000.p 342-350  
SOURCE: Sensors and Actuators, A: Physical v 84 n 3 Sep 2000.p 342-350  
CODEN: SAAPEB ISSN: 0924-4247  
PUBLICATION YEAR: 2000  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 2000(41):614 COMPENDEX

AB SU-8 is a well-known thick photoresist used in fabrication of high aspect ratio Micro ElectroMechanical System (MEMS) structure. However, it is hard to get fine patterns in the high aspect ratio structures because of high internal stress and difficulty of removing SU-8. The purpose of this paper is to set up the process condition for both low film stress and high aspect ratio and to find design rules that make the pattern be less dependent on stress problem. Firstly, the mold fabrication process is optimized by adjustment of exposure and heat treatment. These two conditions control the amount of cross-linkage in polymer structure, which is the most important parameter of both pattern generation and remaining stress. Heat treatment is dealt with soft bake and post-exposure bake (PEB). Temperature and time duration of each step are varied with heat treatment condition. Exposure time is varied with exposure condition. Secondly, stress barrier and C-shaped etch hole are proposed for layout design scheme. The stress barrier is introduced to minimize stress from the large area polymerized SU-8 film. The etch hole designed to be the shape of character 'C' instead of conventional square or wall type etch hole. Some test patterns are fabricated to evaluate the proposed process. Ultra Violet (UV)-LIGA process was performed by nickel electroplating with the mold fabricated through the proposed process to confirm the SU-8 as a good electroplating mold. (Author abstract) 7 Refs.

L7 ANSWER 79 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 12  
ACCESSION NUMBER: 2000(29):5604 COMPENDEX  
TITLE: Wafer level packaging of silicon pressure sensors.  
AUTHOR: Krassow, H. (Universitat Autònoma de Barcelona, Bellaterra, Spain); Campabadal, F.; Lora-Tamayo, E.  
MEETING TITLE: The 10th International Conference on Solid-State Sensors and Actuators TRANSDUCERS '99.  
MEETING ORGANIZER: Institute of Electrical Engineers

MEETING LOCATION: Sendai, Jpn  
MEETING DATE: 07 Jun 1999-10 Jun 1999  
SOURCE: Sensors and Actuators, A: Physical v 82 n 1 2000.p  
229-233  
SOURCE: Sensors and Actuators, A: Physical v 82 n 1 2000.p  
229-233  
CODEN: SAAPEB ISSN: 0924-4247  
PUBLICATION YEAR: 2000  
MEETING NUMBER: 56883  
DOCUMENT TYPE: Journal  
TREATMENT CODE: Experimental  
LANGUAGE: English

AN 2000(29):5604 COMPENDEX

AB In this paper, a new pre-packaging technique for silicon pressure sensors on the wafer level is presented. It is based on the use of UV photopatternable silicone which is deposited over the whole wafer by means of a novel device suitable for low-viscosity material coating and mask alignment. The process consists of the exposure of the deposited layer to UV light leading to cross-linking of the polymer according to the pattern of a chrome mask, which leaves the membrane area as well as the bonding pads free from silicone. After development and dicing, the chips are packaged and conventional wire bonding is performed. The area surrounding the UV photopatternable silicone pattern can then be filled with soft silicone gel for protection of the electrically active components against aggressive media. Results are presented for silicon piezoresistive pressure sensors on which 1.5-mm high octagonal wall structures of silicone elastomer have been patterned. Despite the thickness of the deposited layer, good resolution and aspect ratio are obtained, and the temperature dependence of the packaged pressure sensors is not influenced by the polymer layers. (Author abstract) 7 Refs.

L7 ANSWER 80 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:795345 CAPLUS  
TITLE: Functional nanostructured materials via the polymerization of liquid crystal assemblies.  
AUTHOR(S): Gin, Douglas L.  
CORPORATE SOURCE: Department of Chemistry, University of California, Berkeley, CA, 94720, USA  
SOURCE: Abstracts of Papers, 220th ACS National Meeting, Washington, DC, United States, August 20-24, 2000 (2000) IEC-096  
CODEN: 69FZC3  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal; Meeting Abstract  
LANGUAGE: English

AB Our research group recently developed a general approach that allows ready access to a new generation of nanostructured organic materials in which functional properties are not only integrated into the materials but also modified or enhanced by the tailored nanoarchitecture. In this approach, we design polymerizable organic mols. based on thermotropic (temperature dependent) and lyotropic (i.e., amphiphilic or concentration dependent) liquid crystals (LCs) that carry, or can accommodate, a functional property of general interest. Through mol. design, we direct them to assemble into fluid yet ordered assemblies with predictable nanoscale geometries and subsequently cross-link them into robust polymer networks with preservation of their small-scale structures. Examples of functional nanomaterials that have been developed from lyotropic LC assemblies include ordered nanocomposites, catalytically active mol. sieve analogs, and nanoporous filtration membranes. Nanostructured light-emitting systems and noncentrosym. polymer networks have also been generated from

thermotropic LC building blocks. This presentation will present an overview of our work in this area, as well as new directions in materials design we are pursuing with different LC phase architectures.

L7 ANSWER 81 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 1999(19):455 COMPENDEX  
TITLE: Polypyrrole colloids - assisted proton transport in hydrated polyacrylic acid matrix.  
AUTHOR: Hong, Liang (Natl Univ of Singapore, Singapore, Singapore); Zhou, Yujie  
SOURCE: Composites - Part A: Applied Science and Manufacturing v 30 n 2 1999.p 169-177  
SOURCE: Composites - Part A: Applied Science and Manufacturing v 30 n 2 1999.p 169-177  
CODEN: CASMFJ ISSN: 1359-835X  
PUBLICATION YEAR: 1999  
DOCUMENT TYPE: Journal  
TREATMENT CODE: General Review  
LANGUAGE: English

AN 1999(19):455 COMPENDEX

AB This paper reports an investigation into the rheological behavior of aqueous suspension systems consisting of colloidal polypyrrole (PPy) particles and polyacrylic acid (PAA). We have observed a strong interaction between PPy colloids and PAA chains in an aqueous medium. Based on this observation, a new polymer composite was prepared, in which PPy colloidal particles were uniformly distributed in a semi-interpenetrating network (semi-IPN) consisting of linear PAA (Mw equals 2000) in a cross-linked polymer left bracket poly(acrylamide-methylenebisacrylamide) PAAM-MBAM right bracket . The weight ratio of PPy in the composites was varied in the range of 0.2%-2.3%, and as a result of the low PPy content, the composites are electrically non-conductive in the dry state. However, they become electrically conductive when hydrated. There is a percolation threshold of water content with respect to the electrical resistivity. The semi-IPN composites containing PPy appear to have a lower percolation threshold than the blank semi-IPN composite. For example, as the water content increases from 14 to 15 wt% the resistivity of semi-IPN embracing 0.8% PPy reduces 10 times, while that of the blank semi-IPN reduces only 1.3 times. The difference in electrical resistivity may be attributed to the enhancement of proton transport by PPy colloids. This enhancement is probably due to the fact that PPy possesses a weak Bronsted basicity as well as a rigid conjugated structure. In other words, nitrogen atoms of PPy may coordinate with protons not too strongly and allow the protons to transport along the planar conjugated structure of PPy, thus contributing to the proton conductivity. (Author abstract) 17 Refs.

L7 ANSWER 82 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 13

ACCESSION NUMBER: 1997:259212 CAPLUS  
DOCUMENT NUMBER: 126:319168  
TITLE: Laboratory evaluation of phenol-formaldehyde/polymer gelants for high-temperature applications  
AUTHOR(S): Bryant, Steven L.; Bartosek, Martin; Lockhart, Thomas P.  
CORPORATE SOURCE: Eniricerche S.p.A., via F. Maritano, 26, I-20097, San Donato Milanese, Italy  
SOURCE: Journal of Petroleum Science & Engineering (1997), 17(3/4), 197-209  
CODEN: JPSEE6; ISSN: 0920-4105  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Polymer gels are attractive tools for stopping unwanted fluid production from oil and gas wells, but conventional gelant

formulations become increasingly difficult to apply at higher formation temps. In contrast phenol-formaldehyde cross-linked polymer gelants remain viable to at least 140°C. Choice of polymer composition permits control of the gelation delay, and the gelants display good injectivity even when the residence time approaches the gelation time. Crosslinking occurs over a wide range of pH and is insensitive to lithol. Although retention of the gelant components on formation rock is negligible, phenol strongly partitions into oil phases contacted by the gelant. Expts. and numerical modeling show that a preflush of phenol is an effective method of compensating for phenol partitioning in the formation.

L7 ANSWER 83 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 1998(22):2562 COMPENDEX  
TITLE: Mathematical model for polymer flooding/crosslinking polymer flooding in the fractured reservoir and its application.  
AUTHOR: Yang, Zh.-m. (Inst of Porous Flow and Fluid Mechanics of Academia Sinica, He Bei, China); Zhu, W.-y.; Sun, P.-x.; Zhang, Sh.-z.  
MEETING TITLE: Proceedings of the 1997 International Symposium on Multiphase Fluid, Non-Newtonian Fluid and Physico-Chemical Fluid Flows, ISMNP'97.  
MEETING LOCATION: Beijing, China  
MEETING DATE: 07 Oct 1997-10 Oct 1997  
SOURCE: Proceedings of the 1997 International Symposium on Multiphase Fluid, Non-Newtonian Fluid and Physico-Chemical Fluid Flows, ISMNP'97 1997.Int Acad Publ.p 5.45-5.51  
SOURCE: Proceedings of the 1997 International Symposium on Multiphase Fluid, Non-Newtonian Fluid and Physico-Chemical Fluid Flows, ISMNP'97 1997.Int Acad Publ.p 5.45-5.51  
PUBLICATION YEAR: 1997  
MEETING NUMBER: 48107  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical  
LANGUAGE: English

AN 1998(22):2562 COMPENDEX

AB This paper describes a 2-D,2-phase,5-component dual-permeability and dual-porosity mathematical model, which can solve the polymer flooding and in-site cross-linking polymer flooding in dual-media reservoir.Using this model, we do a series of numerical calculation, and analyze the flow law of polymer in dual-media reservoir, study the effect of polymer concentration and ratio of fracture permeability to matrix permeability on oil displacement efficiency.By comparing the oil displacement efficiency of polymer flooding and cross-linking polymer flooding, we draw some helpful conclusions.This paper supplies theoretical fundament and calculation method for polymer flooding and in-site cross-linking polymer flooding in dual-media reservoir.(Author abstract) 2 Refs.

L7 ANSWER 84 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:338484 CAPLUS  
DOCUMENT NUMBER: 124:347873  
TITLE: Stabilizing emulsions using silane  
INVENTOR(S): Smith, Philip Stephen; Hibbert, Julie Ann  
PATENT ASSIGNEE(S): Sofitech N.V., Belg.; Compagnie Des Services Dowell Schlumberger S.A.; Schlumberger Canada Limited  
SOURCE: PCT Int. Appl., 11 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent

LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9607710	A1	19960314	WO 1995-GB2034	19950830
W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM				
RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9533523	A	19960327	AU 1995-33523	19950830
GB 2307653	A	19970604	GB 1997-4696	19950830
GB 2307653	B	19990127		
US 6156805	A	20001205	US 1999-809558	19990510
PRIORITY APPLN. INFO.:			GB 1994-17974	A 19940907
			WO 1995-GB2034	W 19950830

OTHER SOURCE(S): MARPAT 124:347873

AB Drilling muds are employed when drilling an oil well, primarily to carry rock cuttings up to the surface and out of the wellbore. Both water-based and oil-based muds are used, but the latter possess many operational advantages. However, conventional oil-based muds do suffer from a number of undesirable characteristics - the oil may be retained on the drill cuttings, and the presence of large amts. of the essential emulsifiers and other oil wetting agents can alter the wettability of oil-holding reservoir formations through which the borehole passes, thereby reducing their permeability to oil, and so making it more difficult to extract the oil therefrom. The present invention seeks to provide an alternative way of preparing water-in-oil emulsions so that in such emulsions high water levels and high stability can still be achieved but with the use of minimal levels of surfactant. More specifically, the invention suggests that the stability of water-in-oil emulsions may be significantly enhanced by using as a stabilizing agent a particular type of silane - thus, first there is formed a water-in-oil emulsion with a fine dispersed aqueous phase in the continuous oil phase, and then there is added to this a silane having bonds which hydrolyze and condense to form a cross-linked polymer at the water-oil interface.

L7 ANSWER 85 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 14  
ACCESSION NUMBER: 1997(11):3938 COMPENDEX  
TITLE: Improved color filter process for CCD and CMOS imagers.  
AUTHOR: Miller, H. (Polaroid Corp, Cambridge, MA, USA)  
MEETING TITLE: Proceedings of the 1996 7th Annual IEEE/SEMI Advanced Semiconductor Manufacturing Conference, ASMC 96.  
MEETING ORGANIZER: IEEE  
MEETING LOCATION: Cambridge, MA, USA  
MEETING DATE: 12 Nov 1996-14 Nov 1996  
SOURCE: IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop 1996.IEEE, Piscataway, NJ, USA,96CH35953.p 192-195  
SOURCE: IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop 1996.IEEE, Piscataway, NJ, USA,96CH35953.p 192-195  
CODEN: IASPFQ  
PUBLICATION YEAR: 1996  
MEETING NUMBER: 45904  
DOCUMENT TYPE: Conference Article  
TREATMENT CODE: Theoretical

LANGUAGE: English

AN 1997(11):3938 COMPENDEX

AB Several different methods exist for converting monochromatic, solid-state imagers into color. One of the first techniques was to rotate a color filter wheel in front of the sensor for each exposure. More recently, high-definition cameras align three different sensors and separate the color signals using dichroic filters mounted on a prism. Yet another method, known as 'on-chip' color filters, applies a pattern of colored elements directly to the surface of the sensor. This type of filter is commonly produced by depositing successive layers and transferring a dye through a patterned photoresist. At Polaroid Corporation, color filters are produced in a unique, single-step photolithographic process by incorporating a dye directly into the resist prior to coating. The patterned photoresist and dye combination is then baked to stabilize the filter element against the next coating of colored photoresist. These color filters can often be sensitive to the high temperature bakes as well as other heat treatments found in the packaging process. Often the resist will reflow and discolor, thus reducing the resolution, sensitivity and production yield of the device. We are proposing a solution for eliminating or reducing the hard bakes between colors by treating the filter elements with a silylating compound capable of cross-linking the photoresist by incorporating silicon into the polymeric chain. This process eliminates three baking steps and reduces the risk of reflowing and yellowing the resist as well as degrading the dye. Furthermore, the filters are sufficiently stabilized by silylation such that they can survive the high temperatures required for producing microlenses and completing the packaging process. A preferred silylation compound is hexamethylcyclotrisilazane (HMCTS). This same silylation compound can also be used to promote adhesion of the dyed photoresist layers and to replace a separate treatment by other commonly used silylation compounds such as hexamethyldisilazane (HMDS). This results in a process which is more robust and has a higher yield. (Author abstract) 9 Refs.

L7 ANSWER 86 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:772682 CAPLUS

DOCUMENT NUMBER: 123:148660

TITLE: High viscosity cross-linked gelled alcohol for use as fracturing fluid

INVENTOR(S): Mzik, Joseph; Pierce, Ronald G.; Gaudet, Denis R.; Bobier, Dwight M.

PATENT ASSIGNEE(S): Canadian Fracmaster Ltd., Can.

SOURCE: PCT Int. Appl., 21 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 9510688	A1	19950420	WO 1994-CA588	19941012
W: AU, NO				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2108194	A1	19950413	CA 1993-2108194	19931012
CA 2108194	C	19970506		
CA 2119682	A1	19950924	CA 1994-2119682	19940323
CA 2119682	C	19970506		
AU 9479356	A	19950504	AU 1994-79356	19941012
AU 686675	B2	19980212		
EP 672218	A1	19950920	EP 1994-930136	19941012
EP 672218	B1	19980902		
R: AT, DE, GB, NL, SE				



AT 170594	T	19980915	AT 1994-930136	19941012
NO 9502211	A	19950802	NO 1995-2211	19950602
US 5874385	A	19990223	US 1997-962219	19971031
PRIORITY APPLN. INFO.:			CA 1993-2108194	A 19931012
			CA 1994-2119682	A 19940323
			US 1994-321397	B1 19941011
			WO 1994-CA588	W 19941012

AB A fracturing fluid composition for use in fracturing underground formations, such as oil or gas wells is described. It includes at least one anhydrous aliphatic alc., a modified guar gum polymer, and as a complexor, a sodium borate salt. A gel breaker which acts over a time period to degrade the guar gum cross-linked polymer and thereby reduce the viscosity of the gel is provided as well to aid in the removal thereof from an oil or gas well that was fractured by application of the fluid under pressure.

L7 ANSWER 87 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:872365 CAPLUS

DOCUMENT NUMBER: 124:75033

TITLE: Cross-linked gas permeable membrane of a cured perfluorinated urethane polymer, and optical gas sensors fabricated with them

INVENTOR(S): Olstein, Alan

PATENT ASSIGNEE(S): Optical Sensors Inc., USA

SOURCE: U.S., 11 pp. Cont.-in-part of U.S. Ser. No. 848,627, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5453248	A	19950926	US 1992-911175	19920812
WO 9318391	A1	19930916	WO 1993-US1827	19930226
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9337831	A	19931005	AU 1993-37831	19930226
AU 669515	B2	19960613		
EP 630469	A1	19941228	EP 1993-907111	19930226
R: DE, FR, GB, IT				
JP 07507136	T	19950803	JP 1993-515815	19930226
US 5631340	A	19970520	US 1995-396632	19950301

PRIORITY APPLN. INFO.:

	US 1992-848627	B2	19920309
	US 1992-911175	A	19920812
	WO 1993-US1827	A	19930226

AB An optical sensor is provided for measuring dissolved gases such as O2 or CO2 in a fluid sample. The sensor is formulated so as to contain a gas permeable membrane of a cured perfluorinated urethane polymer and, incorporated therein, a gas-sensitive indicator component. Methods for making and using the membrane and sensor are provided as well.

L7 ANSWER 88 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:772925 CAPLUS

DOCUMENT NUMBER: 123:261526

TITLE: Method for fracturing subterranean formations using controlled release breakers and compositions useful therein

INVENTOR(S): Gupta, D. V. Satyanarayana; Prasek, Bethicia B.

PATENT ASSIGNEE(S): The Western Company of North America, USA

SOURCE: U.S., 8 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5437331	A	19950801	US 1994-295269	19940824
PRIORITY APPLN. INFO.:			US 1994-295269	19940824

AB A method of fracturing a subterranean formation in a well bore is shown in which a gelable fracturing fluid is first formed by blending together an aqueous fluid, a hydratable polymer, a suitable crosslinking agent for crosslinking the hydratable polymer to form a polymer gel and an encapsulated enzyme breaker. The cross-linked polymer gel is pumped into the well bore under sufficient pressure to fracture the surrounding formation. The encapsulated enzyme breaker is allowed to degrade the cross-linked polymer with time to reduce the viscosity of the fluid so that the fluid can be pumped from the formation back to the well surface. The particular enzyme breaker uses open cellular encapsulation to protect and delay the action of the enzyme.

L7 ANSWER 89 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:867899 CAPLUS  
 DOCUMENT NUMBER: 123:261530  
 TITLE: Well drilling and servicing fluids which deposit an easily removable filter cake.  
 INVENTOR(S): Dobson, James W.; Mondshine, Thomas C.  
 PATENT ASSIGNEE(S): Texas United Chemical Co., LLC., USA  
 SOURCE: Eur. Pat. Appl., 18 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 672740	A1	19950920	EP 1995-301660	19950314
EP 672740	B1	20000531		
R: DE, DK, FR, GB, IT, NL				
US 5607905	A	19970304	US 1994-212814	19940315
CA 2140845	A1	19950916	CA 1995-2140845	19950123
CA 2140845	C	20051025		
AU 9514722	A	19950921	AU 1995-14722	19950309
AU 689842	B2	19980409		
NO 9500946	A	19950918	NO 1995-946	19950313
NO 310314	B1	20010618		

PRIORITY APPLN. INFO.: US 1994-212814 A 19940315

AB The invention provides alkaline water base well drilling and servicing fluids which deposit an easily degradable and removable filter cake on the sides of a borehole during well drilling and servicing operations. The fluids contain one or more polysaccharide polymers, sized bridging particles, and a peroxide selected from the group consisting of alkaline earth metal peroxides, zinc peroxide, and mixts. thereof. The fluids deposit a filter cake containing the peroxide. The invention also provides processes for enhancing the removal of the filter cake which comprises depositing a peroxide-containing filter cake on the sides of the borehole, or on the filter cake already present on the sides of the borehole, and thereafter contacting the peroxide-containing filter cake with an acidic solution to

activate the peroxide which thereafter degrades the polysaccharide polymers in the filter cake. Preferably the filter cake containing the degraded polymer is washed with a fluid in which the bridging particles are soluble to remove the entire filter cake(s) from the sides of the borehole.

L7 ANSWER 90 OF 99 INSPEC (C) 2007 IET on STN  
 ACCESSION NUMBER: 1996:5315123 INSPEC  
 DOCUMENT NUMBER: A1996-16-4660-004  
 TITLE: Generalized Rouse model for a dilute solution of clustered polymers  
 AUTHOR: van der Vorst, B.; Toose, E.M.; van den Ende, D.; Jongschaap, R.J.J.; Mellema, J. (Dept. of Appl. Phys., Twente Univ., Enschede, Netherlands)  
 SOURCE: Rheologica Acta (May-June 1995), vol.34, no.3, p. 274-80, 14 refs.  
 CODEN: RHEAAK, ISSN: 0035-4511  
 SICI: 0035-4511(199505/06)34:3L.274:GRMD;1-Q  
 Published by: Dr. Dietrich Steinkopff Verlag, Germany  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Theoretical  
 COUNTRY: Germany  
 LANGUAGE: English  
 AN 1996:5315123 INSPEC DN A1996-16-4660-004  
 AB A theory analogue to that of Rouse is given, to describe the rheological behavior of dilute solutions consisting of clusters of cross-linked polymers. The frequency-dependent behavior of the dynamic moduli of these fluids differs substantially from that of the well-known Rouse-like fluid ( $G' \approx G'' \approx \omega^{1/2}$ ). In our case the storage modulus becomes proportional to  $\omega^{3/2}$ , while the loss modulus is proportional to  $\omega$ . The loss modulus dominates the dynamic behavior for frequencies smaller than the largest normal frequency of the clusters

L7 ANSWER 91 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1994:303093 CAPLUS  
 DOCUMENT NUMBER: 120:303093  
 TITLE: Method of dissolving organic filter cake obtained from polysaccharide based fluids used in production operations and completions of oil and gas wells  
 INVENTOR(S): Tjon-Joe-Pin, Robert M.; Brannon, Harold D.; Rickards, Allan R.  
 PATENT ASSIGNEE(S): BJ Services Co., USA  
 SOURCE: U.S., 10 pp. Cont.-in-part of U.S. 5,201,370.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5247995	A	19930928	US 1992-910050	19920708
US 5201370	A	19930413	US 1992-842038	19920226
WO 9318278	A1	19930916	WO 1993-US1367	19930219
W: NL				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 628129	A1	19941214	EP 1993-905980	19930219
EP 628129	B1	19980415		
R: BE, CH, DE, DK, ES, FR, GB, IE, IT, LI, LU, NL, PT, SE				
WO 9401654	A1	19940120	WO 1993-US6113	19930701
W: CA, GB, NL, NO				

NL 9320040	A	19950501	NL 1993-20040	19930701
GB 2283519	A	19950510	GB 1995-181	19930701
GB 2283519	B	19960214		
CA 2139624	C	20010102	CA 1993-2139624	19930701
NO 9500063	A	19950214	NO 1995-63	19950106
PRIORITY APPLN. INFO.:			US 1992-842038	A2 19920226
			US 1992-842041	A2 19920226
			US 1992-910050	A 19920708
			WO 1993-US1367	W 19930219
			WO 1993-US6113	W 19930701

AB Damaging materials within a subterranean formation of a well bore, e.g., filter cakes and very viscous fluids, are degraded using an enzyme treatment. The enzyme treatment degrades polysaccharide-containing filter cakes and damaging fluids to reduce their viscosity; they can then be removed from the formation to the well surface. The enzymes used are specific to a particular type of polysaccharide and are active at low to moderate temps. The enzymes attack only specific linkages in the damaging materials and are active at pH 2.0-10.0.

L7 ANSWER 92 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:476107 CAPLUS  
 DOCUMENT NUMBER: 119:76107  
 TITLE: Enzyme breaker for galactomannan based fracturing fluid  
 INVENTOR(S): Tjon-Joe-Pin, Robert M.  
 PATENT ASSIGNEE(S): BJ Services Co., USA  
 SOURCE: U.S., 7 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5201370	A	19930413	US 1992-842038	19920226
US 5247995	A	19930928	US 1992-910050	19920708
WO 9317218	A1	19930902	WO 1993-US1366	19930219
W: NL				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 628130	A1	19941214	EP 1993-905979	19930219
EP 628130	B1	19980114		
R: BE, CH, DE, DK, ES, FR, GB, IE, IT, LI, LU, NL, PT, SE				
PRIORITY APPLN. INFO.:			US 1992-842038	A2 19920226
			US 1992-842041	A2 19920226
			WO 1993-US1366	W 19930219

AB A method for fracturing a subterranean formation in a well bore uses a gelable fracturing fluid. The gelable fracturing fluid is formed by blending an aqueous fluid, a hydratable polymer, a suitable crosslinking agent for crosslinking the hydratable polymer to form a gel and enzymes to degrade the polymer. The cross-linked polymer gel is pumped into the well bore under sufficient pressure to fracture the surrounding formation. The enzyme is allowed to degrade the cross-linked polymer with time to reduce the viscosity of the fluid so that the fluid can be pumped from the formation back to the well surface. The hydratable polymer is a guar or a guar derivative. The enzymes used are a 1:2 solution of 1,6- $\alpha$ -D-galactosidase and mannan endo-1,4- $\beta$ -mannosidase, are stable at pH 2.0-11.0, and only attack specific linkages in the cross-linked polymer gel.

L7 ANSWER 93 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN DUPLICATE 15  
 ACCESSION NUMBER: 1991(11):133696 COMPENDEX  
 DOCUMENT NUMBER: 9111135090  
 TITLE: Fluidised beds as 'coolth' stores.  
 AUTHOR: Kay, D. (Cranfield Inst of Technology, Bedford, Engl);  
 Highgate, D.; Knight, C.; Probert, S.D.  
 SOURCE: Appl Energy v 39 n 3 1991 p 241-255  
 SOURCE: Appl Energy v 39 n 3 1991 p 241-255  
 CODEN: APENDX ISSN: 0306-2619  
 PUBLICATION YEAR: 1991  
 DOCUMENT TYPE: Journal  
 TREATMENT CODE: Experimental  
 LANGUAGE: English  
 AN 1991(11):133696 COMPENDEX DN 9111135090  
 AB High energy-density thermal storage at low temperatures is feasible using  
 phase-change materials. Thus an energy-storage device has been conceived  
 which uses water-absorbing cross-linked  
 polymers, known as hydrophilic materials. These were produced in  
 the form of particles, which can be hydrated. Experiments have been carried  
 out in which hydrophilic particles were fluidised in oil, using  
 concentrations of hydrated particles up to 40% by weight. Energy storage,  
 regularly well in excess of 50% of the theoretical capacity, has  
 been achieved, although, for the maximum value, it was necessary to reduce  
 the mixture temperature to about minus 8 degree C. (Author abstract) 7  
 Refs.

L7 ANSWER 94 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN  
 ACCESSION NUMBER: 1987(6):99020 COMPENDEX  
 TITLE: VISCOELASTICITY OF CROSSLINKED FRACTURING  
 FLUIDS AND PROPPANT TRANSPORT.  
 AUTHOR: Acharya, A. (BJ-Titan Services Co)  
 MEETING TITLE: Proceedings - Production Operations Symposium.  
 MEETING ORGANIZER: Soc of Petroleum Engineers of AIME, Richardson, TX,  
 USA  
 MEETING LOCATION: Oklahoma City, OK, USA  
 MEETING DATE: 08 Mar 1987-10 Mar 1987  
 SOURCE: Society of Petroleum Engineers of AIME, (Paper) SPE  
 Publ by Soc of Petroleum Engineers of AIME,  
 Richardson, TX, USA SPE 16221, p 359-369  
 SOURCE: Society of Petroleum Engineers of AIME, (Paper) SPE  
 Publ by Soc of Petroleum Engineers of AIME,  
 Richardson, TX, USA SPE 16221, p 359-369  
 CODEN: SEAPAZ  
 PUBLICATION YEAR: 1987  
 MEETING NUMBER: 09570  
 DOCUMENT TYPE: Conference Article  
 LANGUAGE: English  
 AN 1987(6):99020 COMPENDEX  
 AB The first part of the paper describes the theoretical transport equations  
 that take into account the elasticity of the fluid in predicting  
 proppant settling rate in the fracture. The second part of the paper  
 presents the experimental data of commonly used fracturing fluids  
 (titanate and borate cross-linked). The rheology data includes both viscous  
 and elastic parameter measurements using Rheometrics Pressure Rheometer  
 and Rheometrics Mechanical Spectrometer. The third part of the paper  
 presents experimental data of proppant settling rates in various  
 fracturing fluids and how these can be correlated with  
 rheological parameters that were obtained in this work. The differences in  
 rheology between borate and titanate gels was correlated with the  
 difference in settling rates of proppants in these two gels. The influence  
 of cross-linked polymer gel network  
 structure on proppant transport is also discussed. (Edited author  
 abstract) 14 refs.

L7 ANSWER 95 OF 99 COMPENDEX COPYRIGHT 2007 EEI on STN

ACCESSION NUMBER: 1974(1):643 COMPENDEX

DOCUMENT NUMBER: 74013019

TITLE: REVERSIBLE CROSS LINKING IN OIL RECOVERY.

AUTHOR: Friedman, R.H. (Getty Oil Co, Houston, Tex)

SOURCE: Oilfield Chem Symp, Prepr, Denver, Colo, May 24-25  
1973 Pap 4357, p 107-112. Available from Soc of Pet  
Eng of AIME, Dallas, Tex, 1973

SOURCE: Oilfield Chem Symp, Prepr, Denver, Colo, May 24-25  
1973 Pap 4357, p 107-112. Available from Soc of Pet  
Eng of AIME, Dallas, Tex, 1973

PUBLICATION YEAR: 1973

LANGUAGE: English

AN 1974(1):643 COMPENDEX DN 74013019

AB Construction of an oleotropic, or oil seeking, post primary fluid  
is described. Multiple viscosity levels are possible for a polymer  
solution depending upon the degree of cross-linking of  
the polymer. Cross-linking is dependent upon the presence of a  
highly oil-soluble, barely water-soluble"trigger. "Extraction of  
the"trigger"at the oil-water interface effects viscosity reversal.

L7 ANSWER 96 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1967:12726 CAPLUS

DOCUMENT NUMBER: 66:12726

TITLE: Treating of oil well formations

INVENTOR(S): Roberts, William Gordon

PATENT ASSIGNEE(S): Phillips Petroleum Co.

SOURCE: U.S., 7 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 3283817		19661108	US 1964-335681	19640103
AB	Improvements in the fracturing and propping of low permeability oil sands adjacent to oil wells are proposed which remove the low solubility salts in the formation. Alkaline earth metal ion scavenging agents are used which can be regenerated in place. They are introduced into the sand fissures as finely divided, crush-resistant particles, made up from alkali metal sulfonate groups, of polymers of monovinyl-substituted aromatic hydrocarbons. In one example, 35° API crude oil is used as a carrier fluid. A styrene-divinylbenzene (90:10) cross -linked polymer is prepared by emulsion polymerization at 25° with persulfate initiator. The polymer in bead form is sulfonated at 25° with fuming H2SO4 followed by neutralization with NaOH. The resultant solid is mixed with crude oil at 2 lb./gal., and applied at a pressure of 2400 psi. The well was shut down for 8 hrs., and upon resuming production the well remained open 10 months instead of 3 or 4 months for other wells in the same formation.			

L7 ANSWER 97 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1967:42334 CAPLUS

DOCUMENT NUMBER: 66:42334

TITLE: Deletion fluid

INVENTOR(S): Abbott, Thomas I.; Smith, Donald Arthur

PATENT ASSIGNEE(S): Eastman Kodak Co.

SOURCE: U.S., 4 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3276361		19661004	US 1965-480510	19650817

AB Removal of the tanned and hence oleophilic image area on a photographic lithographic plate is accomplished by treating these areas with a 2-8% aqueous solution of a hydrophilic, cross-linkable polymer and a cross-linking agent, e.g. HCHO. Thus, a lithographic plate prepared according to U.S. 3,146,104 (CA 61, 11524g), was exposed, activated for 20 sec. in 4% aqueous Na<sub>2</sub>CO<sub>3</sub>.H<sub>2</sub>O solution and then immersed for 20 sec. in an acidic stop bath. A portion of the image area was then rendered nonprinting by brushing it 1st with a 12% solution of 90/10 (by weight) of the copolymer of acrylamide and N-cyanoacetyl-N'-methacryloylhydrazine and then with a 10% aqueous HCHO solution. The dried plate was run on a standard lithographic press; all printing areas reproduced well and the treated area showed no printing or scumming.

L7 ANSWER 98 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1960:36545 CAPLUS  
DOCUMENT NUMBER: 54:36545  
ORIGINAL REFERENCE NO.: 54:7169b-g  
TITLE: Forming continuous shaped structures by polymerization of cyclic ethers  
INVENTOR(S): Campbell, Tod W.  
PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2891837		19590623	US 1956-617928	19561024

AB The polymerization process comprises injecting a liquid stream of a reactant consisting essentially (90-100%) of a 3,3-bis-(halomethyl)oxetane (I), preferably chloromethyl, or their mixts. through an orifice into an inert fluid containing PF<sub>5</sub>. The polymerization of I (and copolymerization, if another monomer is present in an amount up to 10%) occurs immediately upon contact with the PF<sub>3</sub> solution. The comonomers are cyclic ethers and cyclic thio ethers containing 3-4 members in the ring and the various substituted ethylenes, such as isobutylene,  $\alpha$ -methylstyrene, or vinyl ethers. Filaments, ribbons, films, tubes, etc., are formed. The inert fluids which may be used as carriers for the PF<sub>5</sub> include liquids and gases as well as aerosols, and contain up to 50% of the catalyst, preferably 5-10%, by weight. The temperature of the inert fluid should be between -25 and 50°, <25° giving higher-mol. materials. For example, 8 mole % PF<sub>5</sub> vapor was introduced into a flask flushed with N and capped with a polyethylene sheet. A stream of I (halo = Cl) was injected at room temperature from a number 20 hypodermic needle. Filaments were immediately formed which, after removal from the flask, could be drawn at 100° to form oriented crystalline fibers, m. 177°. Filaments thus produced and drawn 4 times their extruded length had a tenacity of 1.3 g./denier, an elongation of 14% at the breaking point, and an initial modulus of 22. A useful comonomer was prepared from 11.5 g. of Na added under N to 500 ml. of absolute EtOH. H<sub>2</sub>S was passed into the mixture until saturation took place and then

another 11.5 g. of Na was added. To this solution, 77.5 g. of I (halo = Cl) was added. The mixture was refluxed for 24 hrs. and then filtered. The precipitate was washed with Et<sub>2</sub>O, and the combined washings and filtrate were distilled to give 10.3 g. 2-oxa-6-thiaspiro[3.3]heptane (II), b<sub>15</sub> 85°. A solution of 12.5 g. of 30% H<sub>2</sub>O<sub>2</sub> in 12 ml. of AcOH was used to oxidize 7.5 g. of II by mixing for 2 hrs. at 25°, controlling the exothermic reaction with ice H<sub>2</sub>O. The residue was evaporated to dryness and recrystd. twice from MeOH, then from toluene. The m.p. of the novel comonomer, 2-oxa-6-thiaspiro[3.3]heptane 6,6-dioxide (III) was 161-2° and the yield 4.7 g. A 5% solution of III in I (halo = Cl), when spun in PF<sub>5</sub> in N, formed drawable filaments.

L7 ANSWER 99 OF 99 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1955:81097 CAPLUS  
DOCUMENT NUMBER: 49:81097  
ORIGINAL REFERENCE NO.: 49:15277b-f  
TITLE: Changes in silicone polymeric fluids due to high-energy radiation  
AUTHOR(S): Charlesby, A.  
CORPORATE SOURCE: At. Energy Research Estab., Harwell, UK  
SOURCE: Proc. Roy. Soc. (London) (1955), A230, 120-35  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB When subjected to high-energy radiation, polydimethylsiloxanes can be cross-linked to form insol. amorphous structures which are transparent and have marked rubberlike properties. Data are given on the relation between mol. weight and bulk viscosity. The relation between cross-linking d. and radiation dose is deduced from the changes in both solubility and fusibility, and is confirmed by elastic measurements. Details are given of the change of solubility and swelling with radiation dose. Brief comparison is made with cross-linking in hydrocarbon polymers. The expts. indicate that the d. of cross-linking in dimethylsiloxane polymers is approx. independent of mol. weight (except for very low polymers) and is proportional to radiation dose. The process is very similar to the cross-linking of paraffins, but in the silicones no unsatn. is possible. The irradiated pure silicones remain clear and transparent in the visible region after irradiation, whereas paraffins, and nearly all polymers with a C-C main chain, turn yellow or brown, owing to the shift of the tail of the ultraviolet absorption spectrum into the visible region. The cause of this color change in paraffins has not been elucidated. It is not due to electrons trapped at F centers, since the same color change is observed when the specimen is irradiated in the form of a liquid. In dimethylpolysiloxanes, there is no trace of degradation, although 2 Me groups are attached to a single Si atom. The corresponding polyisobutylene degrades rapidly, with formation of an unsatd. polymer, but no such process is possible in silicone polymers. This indicates that degradation under irradiation is favored when an unsatd. and stable polymer can be formed. For high-viscosity silicone fluids, only small amts. of radiation are needed to convert them to insol. gels. The transition from a viscous fluid to a rubberlike amorphous solid, and the further change to a brittle powdery mass, described here for irradiated silicones, can also be observed for polyethylene above its m.p. and may well be related to the phenomenon of overvulcanization of rubber.

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	378.97	379.18

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
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STN INTERNATIONAL SESSION SUSPENDED AT 18:17:39 ON 27 JUL 2007